

Young collection

BRITISH COLUMBIA.

COLUMBIA RIVER
EXPLORATION,

1866.

REPORTS AND JOURNALS

RELATING TO THE

GOVERNMENT EXPLORATION

OF THE COUNTRY LYING

BETWEEN THE SHUSWAP AND OKANAGAN LAKES AND THE
ROCKY MOUNTAINS.



VICTORIA, B. C.,

PRINTED AT THE GOVERNMENT PRINTING OFFICE.

BRITISH COLUMBIA

1869

(56)

COLUMBIA RIVER

EXPLORATION

1869

REPORT OF THE

GOVERNMENT



J. R. ARMOUR

PRINTED AT THE GOVERNMENT PRESS OF THE

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COLUMBIA RIVER EXPLORATION, 1866.

No. 1.—MR. MOBERLY TO CHIEF COMMISSIONER OF LANDS AND WORKS.

New Westminster,
November 15th, 1866.

SIR,—In accordance with your letter of instructions, dated March 26th, 1866, directing me "to repair to Seymour by the first opportunity, for the purpose of resuming the duties of exploration and construction of trails in the Columbia River District, &c., &c.," I left New Westminster on the 28th of the same month, with the party appointed to accompany me, and proceeded without delay to the foot of Little Shuswap Lake, inspecting the Savona's Ferry Waggon Road and other public works on my way up. At this point my party was detained for a short time, the lake still being covered with ice. On the return of the boat that brought most of my party up from Kamloops, to which place she had returned for another load, we started for Seymour; but on reaching a point about 15 miles below that town, we were again obliged to stop, as the N. W. arm of the Great Shuswap Lake was completely blocked up with ice. After the delay of a few days I, however, succeeded in hiring two canoes with which we broke a passage through the ice, and reached Seymour on the 19th of April. On my arrival there, I found we had started much too early in the season, as the snow was still deep in the woods, even in the vicinity of the Shuswap Lake. I at once took steps to obtain the best and earliest information from the Columbia River, in order to ascertain when I would be able to commence operations on the trail from Kirby's Landing to French Creek.

On the 24th of April, I sent Mr. Hick out on the trail with a party to complete the two bridges left unfinished the previous year, and at the same time instructed him to increase his party and put in the necessary corduroys as soon as it would be possible to get to work. At that time, owing to the snow, it would have been a waste of money to attempt to put them in. The rest of my party, with the exception of Mr. Layton, I employed on the survey of the town site at Seymour.

A portion of the supplies contracted for by you to be delivered at Seymour for my use having arrived, I endeavoured to make arrangements to have them packed to the Columbia, but found that the few white men and Indians then at Seymour, willing to pack, asked such exorbitant rates that it was quite out of the question to employ them; I therefore sent Mr. Layton back to Lytton to employ a gang of Indians by the month, to pack for me between Shuswap Lake and the Columbia River.

Having completed the survey of the town site on the 3rd of May, I left with the rest of my party on the 4th, at noon, and reached the Columbia on the 9th, at 9 a.m., having laid over a day (Sunday) at the 21 mile house, to rest the men that were packing my supplies and instruments. Mr. Turnbull took the latitude of this point, which he made $51^{\circ} 23' 45''$ N. We found there was but little snow on the trail from Seymour to a point about six miles from it, but from that point the snow extended all the distance to the Columbia River, varying from two to four feet on the low ground, and on the mountain from six to fifteen feet.

The day after I reached Kirby's Landing, on the Columbia River, I sent Messrs. Howell and Perry down to the pass, *via* Eagle River, explored by me last year, with orders to cross the divide and ascertain if there was any snow on it. They crossed that divide on the 12th of May, and reported that there was not then any snow on it, and that it was their opinion it had disappeared there at least a month before their arrival.

The day after sending off Messrs. Howell and Perry, I left, with Mr. Turnbull, to locate a line for a trail from Kirby's Landing to French Creek. We were employed on this work until the 21st of May, on which date we returned to La Porte (the steamboat landing at the present head of navigation on the Columbia

River); and on the 24th I commenced the work of opening a trail along the above line, with a party of about thirty men, under Mr. Howell as foreman.

Prior to this, I had been urgently pressed on all sides to clear away the snow on the trail between Shuswap Lake and the Columbia River, to enable pack animals to get across. Representations and reports were made to me, and circulated, of the wildest description, in order to induce me to undertake this work. Having satisfied myself that "the rush" into the mines of French and McCulloch Creeks had, from various causes, been brought about several months too early in the year, and foreseeing the disastrous effect the reaction would have on the revenue of the country, I considered it my duty to curtail the expenditure as much as possible, and, therefore, decided not to clear away the snow, which work would then have necessarily required a very large outlay of money, without any corresponding advantage either to the merchants, the miners, or the Government.

It was always my endeavour to limit the expenditure on the different public works, of which I had charge, to such a sum that, together with all the expenses of the Gold Commissioners and other public officers in the Columbia and Kootenay Districts, it should not exceed the local revenue of the whole district.

I was well aware of the hopes placed by the merchants and others on these mines, and the position in which many of them stood at that time, and their natural anxiety to participate in what they thought was a good trade, and which they were afraid was then being monopolized by the Colville merchants, into whose hands they imagined all the gold then supposed to be coming out of these mines was going. It was quite true there was then a large demand for provisions and tools at the mines, but it was almost entirely by men who had neither money, claims, nor credit, and who, even if they did remain there, would not in all probability be able to reap a return for their labour until the end of August. For the above reasons, Colville merchants who had goods at La Porte then would not forward them to the mines; and others who had large supplies ready to ship from Colville, by the steamer *Forty-nine*, delayed forwarding until they saw a probability of getting some money from the men they might give credit to. I feel satisfied that had the parties who were most pressing to have the snow cleared away been as well acquainted with the true state of affairs at the mines as I was, they never would have asked for that work.

Such was the state of affairs on the Columbia River, during the month of May and the early part of June; and hundreds of men who had hurried up to the mines without either money or supplies, were forced to leave for Colville or Shuswap Lake, without even striking a blow with a pick at the mines, and carrying with them the gloomy accounts that are generally so freely given by disappointed gold-seekers.

The hot weather and heavy rains we had during the time I was occupied in laying out and commencing the work on the trail between Kirby's Landing and French Creek, caused the snow on the mountain between Seymour and the Columbia River to melt rapidly. I therefore left the road party working on French Creek trail, on the 25th of May, and returned to examine the snow on that mountain, and also to see how Mr. Hick was getting on with his work on the trail. I found he had the trail put in order to a point about 12 miles from the Columbia. I also found the snow had melted away very much since I last passed over it; and, as I received, on my way to Mr. Hick's camp, authority to expend a further sum on this trail, I next day commenced cutting a road through the snow, with a party of about seventy men. The men employed on this work nearly all got snow blind, and the work was from that cause much delayed, and rendered more expensive than it would otherwise have been. I, however, managed to get the first train, with a load of my goods, over to the Columbia River, on the 13th June. It was some days after this that others began to bring goods over. By this time, those who had been most urgent to have the work undertaken had learnt the true state of things at the mines, and knew if they did take their supplies in that they had little chance to sell them, unless they did so on credit.

Having seen the above work in full operation, I returned to the road party on the French Creek trail, and put on another party at the upper end of it. I then had a town laid out at French Creek, a plan and report of which I forwarded to you last June; and immediately afterwards returned again to Layton's camp, where I met you on the 9th June.

On my return to the Columbia River, I sent Mr. Turnbull to locate a line for a road through the Eagle Pass. As his Report, &c., which I have already forwarded to you, more than bears out the description of this pass given in my Report last year, it is unnecessary for me to revert to it.

From the 12th to the 28th of June, I was continually engaged on the different trails, completing and closing the work, discharging the men, and forwarding surplus stores to the Columbia River. On the last date, the valley of the Columbia River, in the neighbourhood of Kirby's Landing, was visited by a very severe storm, which filled the trail for several miles with one mass of fallen timber, com-

pletely cutting off all communication by pack animals, between Seymour, La Porte, and the mines. I was, therefore, obliged to employ a number of fresh hands to clear the trails, which I had again open for traffic by the 6th of July. This necessary work was the cause of a considerable expenditure that I did not calculate upon.

On the 14th of July, Mr. Turnbull met me at Kirby's Landing, having completed the location of the line of road through the Eagle Pass, from Shuswap Lake as far as it follows the main valley of the Eagle River. On the 17th July, having provided Mr. Turnbull with a boat and supplies, I dispatched him to complete the location of the Eagle River line, with instructions to proceed (as mentioned in your letter of the 3rd July), on completion of that work, to the head of the Kootenay Lake, and complete the exploration of the line to the eastward of it, on which he was engaged the previous year, when forced back by the approach of winter. I then went up to the summit of the mountain, and paid off the few men still engaged on the corduroys, and made up and took over from Mr. Hick all the accounts, &c., of the Shuswap and Columbia River Trail. From July 23rd to August 3rd, I was engaged forwarding my surplus stores, collecting and storing tools, settling outstanding accounts, &c., &c. On August 4th, I received your letter instructing me to repair to Wild Horse Creek, and execute such work as might be necessary to enable pack animals to pass over the trail between Osoyoos Lake and Wild Horse Creek. I, therefore, left French Creek on the 6th for Fort Shepherd. Mr. Hick accompanied me down the Columbia River, to take charge of the working parties on that trail. We arrived at Fort Shepherd on the 10th August; but not being able to get either labourers or pack animals on our arrival, we could not leave until the 14th. We then commenced the work, and I was engaged on that trail making the necessary arrangements to have the requisite work done, until the 24th August, on which day I reached Wild Horse Creek.

Not having as yet sent you in a report of the trail between Fort Shepherd and Wild Horse Creek, I may here state that the principal objections on that trail are—

1. The great height of the mountain to the westward of the Kootenay Bottom.
2. The Kootenay Bottom is flooded at high water, otherwise the trail, with regard to grades and construction, is the best made trail I have yet seen in the Colony. It is true bridges are required over the Salmon, the Goat, and the Mooyea Rivers, as well as over two or three small creeks, to enable pack animals during high water to cross them. The bridge over the Mooyea I look upon as by far the most important of them, and I think ought to be constructed as soon as possible, as its want is much felt by the merchants and packers trading at Wild Horse Creek. A little more corduroying would also be required in addition to that I put in this season, if traffic sufficient to warrant the outlay should go over from Fort Shepherd.

I cannot see that there is any possibility of avoiding the high mountain crossed by the trail above referred to, unless the circuitous route by the valley of that portion of the Kootenay River between Kootenay Lake and the Columbia River is followed, and then that the Kootenay Lake be either skirted to the Kootenay Bottom or crossed with a ferry, both of which would be most objectionable—I think even more so than the present mountain. The Kootenay Bottom cannot be avoided (unless the lake be crossed as before mentioned), as it extends from the boundary line to the south end of Kootenay Lake; (there is a better crossing in American Territory, immediately south of the line;) and that lake extends in a northerly direction for a distance of about ninety miles. I fear, therefore, that owing to the nature of the country, it will be a difficult matter materially to improve on the present line south of the north end of Kootenay Lake. As Mr. Turnbull's Report and Journal, which I forward with this, will give you a description of the country in that neighbourhood, you will be able to judge if it would be preferable to open a line in that direction.

I was detained two days at Wild Horse Creek before I could get any horses, but on the evening of the 26th having succeeded in hiring three wretched Indian horses, I left, on the 27th, on my return journey to Gold River, via the valleys of the Kootenay and Columbia Rivers, and reached Kirby's Landing on the 13th September, having in that time explored the valley of the Kootenay River, from Wild Horse Creek to a point $1\frac{1}{2}$ miles south of the source of the Columbia River; and the valley of the latter from its source to the mouth of Gold River. As my Journal, accompanied with a map of the route followed by me, which I now forward, will contain full information of this part of the country, I shall only give a general outline in this Report.

The Kootenay River, from Wild Horse Creek to within $1\frac{1}{2}$ miles of the source of the Columbia River, a distance of about 48 miles by trail, flows through a fine valley, with extensive meadows on the bottom, and flats and benches on either side, covered with very fine bunch grass, and generally timbered with scattered red pine and larch of a large growth. The timber gets much thicker as the Columbia Lake (source of the Columbia River) is approached. I followed the trail

along the left or easterly bank of the Kootenay River until I reached the ford, which is directly south of the Columbia Lake. We found the water in the main channel about four feet in depth, but had no difficulty in fording it on horseback. On the northerly side of the ford, a low flat covered with bunch grass and scattered red pines, extends for about $1\frac{1}{2}$ miles to the Columbia Lake. This lake is about 8 miles in length, and is the true source of the largest river that falls into the Pacific Ocean on its easterly side. From the source of the Columbia River to Kinbasket's Crossing, in Latitude $50^{\circ} 47' 04''$, a distance of about 48 miles, I followed along a very good natural trail on the easterly or right bank of the Columbia River. I shall not describe this portion of the above valley in detail, as it is already well and most accurately described in Dr. Hector's Journal of 1860, which is published in Captain Palliser's Report of his exploration in British North America. The only points in which we disagree are our longitudes, neither of which can be relied upon accurately; Captain Palliser's and Dr. Hector's, for the reasons given in their Reports, and because we know that the longitude of Fort Shepherd, as given by Captain Palliser, does not agree with that of the Boundary Commission under the command of Colonel Hawkins, R. E., which must be very reliable. My longitudes are simply based on the distances travelled from a known longitude, corrected by the different courses and latitudes taken at many points. The point from which I base mine is the mouth of Jordan Creek, which was determined by Mr. Leech in 1865.

Mr. Turnbull and myself agree almost exactly in our longitudes of the mouth of Toby Creek, No. 2, he taking his starting point from a fixed point on the Boundary Line, where it crosses the Kootenay Bottom, south of Kootenay Lake.

The benches and flats along the easterly bank of this portion of the Columbia River are generally covered with bunch grass, but the timber grows much more plentifully than on the valley of the Kootenay River north of Wild Horse Creek. On the opposite bank of the Columbia River there is not so much bunch grass and more timber. It is my impression that portions of the valley of the Kootenay River, between Wild Horse Creek and the source of the Columbia River, as possibly also portions of the latter valley, south of Kinbasket's Crossing, will ultimately support a considerable agricultural and pastoral population.

In travelling in a northerly direction from Wild Horse Creek, the valleys of the Kootenay, the Columbia to the Boat Encampment, and the Canoe Rivers, appear continuous. There is a marked difference between the character of the Rocky Mountains to the eastward and that of the Selkirk and other mountains to the westward of the above valley; the Rocky Mountains being a succession of high, rugged, broken, and rocky peaks, the others being more rounded and generally thickly timbered to their summits, except when covered with perpetual snow.

The valley of the Columbia, north of Kinbasket's Crossing, changes very rapidly; it becomes much narrower, the bunch-grass disappears altogether, except on a few spots on the east bank between the above crossing and the mouth of Kicking Horse River; and the banks of the river and mountain sides are covered with a thick growth of timber.

The Columbia River from its source to Kinbasket's Crossing is too shallow in the lower stages of the water for steamboat navigation. From Kinbasket's crossing to the Slate Canon, a distance by river of about seventy-four miles, I consider good steamboat navigation, although in low water some of the bars will probably be rather shallow. I think a steamer could get through the Slate Canon, but the rapids from two to four miles below it are shallow and full of boulders, though not of large size, and I do not think they are navigable. Thence, for a distance down the river of about twenty-five miles, there is good navigation, but it is again impeded by a series of rapids and small falls, some five or six miles in length, which are quite unnavigable. Thence to the northern end of Kinbasket Lake, a distance of about fourteen miles, the navigation is good. From the latter point to the Boat Encampment, a distance of about twenty-two miles, is a series of rapids and riffles, many of a very bad description, and not fit for steamboat navigation.

From the Boat Encampment to the Dalles de Mort, a distance of forty-seven miles, may be considered as navigable, although there are three or four bad rapids where lines would be required.

I saw indications of coal below the Slate Canon, but nothing to lead me to believe that any extensive vein exists there. From the Slate Canon to the Boat Encampment, I saw some very fine slate bed-rock, very similar to that on Antler Creek; and on the easterly side of the river, between these two points, the mountains appeared generally to be of a slate formation; they also extend up the easterly side of the Canoe River, bearing, as far as I could judge, N. 15° W. After leaving the Boat Encampment, I did not see any appearance of slate until I got within a few miles of the mouth of Gold River.

The Kootenay Indians, who live in the valleys of the Kootenay and Columbia Rivers between Wild Horse Creek and Kinbasket's crossing, are rather above the general height of the Indians met with on the Fraser; they are filthy in their habits, and their dress, which is very scant, consists principally of the skins of the

mountain sheep, the cariboo, and the elk; they subsist almost entirely on the flesh of the above animals, the buffalo, and dried salmon. I could not ascertain if they grew any potatoes, but I think not. They have a good many horses, some of which, for Indian horses, are very good ones. They are very indolent, and expert thieves. These Indians do not understand Chinook, and we were obliged to make ourselves understood by signs.

Coming now to the important question of roads, I must, from the more intimate knowledge I have gained of the nature of the country, as well as the climate of the Big Bend, endorse the suggestion I made last year, and recommend that for any permanent road, or even trail, the valley of the Columbia be followed. This valley from the easterly terminus of the Eagle River Pass, or even from the head of the Upper Arrow Lake to the Columbia Lake, is admirably adapted for road building, and considering the nature of the country, the work of construction would not be expensive. The most expensive portion would be from the Boat Encampment to Kinbasket Lake. Should a road or trail be opened at any future time along this valley, the best line for it to follow will be along the easterly or left bank, from the head of the Upper Arrow Lake to a point a short distance below the Boat Encampment, or it might even continue a few miles further along the same bank and cross above the Boat Encampment to the right bank of the Columbia, and thence follow it to its source.

In speaking of a road along the valley of this river, I would call your attention to what I think is not at all unlikely to take place, should the quartz mining in the Big Bend (of which I have but little doubt) prove extensive, and that is, that roads opened in this section of the country should not be located simply with a view to accommodate the travel and freight from the Fraser, going in an easterly direction, but also of an immigration and traffic from the easterly side of the Rocky Mountains, as I am satisfied that should these mines be extensively worked, the larger portion of the immigration, and most probably of the goods also, will come from the eastward.

The Boat Encampment, which is situated at the confluence of three large streams; the Columbia, the river flowing through the south-westerly portion of the Athabasca Pass, and the Canoe River, is, I think, destined to become a point of much importance. If a trail of some thirty-five or forty miles in length should be constructed from a point on the present trail, which passes near the mouth of Gold River, to the Boat Encampment, it would connect with the old Hudson Bay Company's horse trail that terminates at the latter point, and thus open a line for horse travel via the Athabasca Pass, from the valley of the Fraser to that of the Saskatchewan.

With the union of the Colonies of British Columbia and Vancouver Island, and also the confederation of the other British North American Colonies in almost immediate prospect, it must be the desire of all those wishing British interests to prosper in North America, to see a communication opened that will bring these Colonies into more immediate connection with those they are destined ultimately to be so intimately connected with, particularly when it is to the interest of both to attain that object.

In looking forward to the opening of a through line of road to the Saskatchewan, south of the Leather Pass, it now only remains to decide which of the several passes through the Rocky Mountains, south of the Boat Encampment, should be adopted. As the determination of this pass could not be well decided upon without carrying the explorations beyond the easterly boundary of British Columbia, and as it is a matter that affects the Colonies to the eastward of the Rocky Mountains, as well as this one, it would probably be desirable that in deciding on a pass, that the Government of those Colonies should have a representative there, as well as the Government of this Colony, and that their explorations of the different passes be made at the same time.

As I presume the Government are in possession of much more detailed information from the reports of the Chief Gold Commissioner, with regard to the mines of Wild Horse, French, and McCulloch's Creeks, than I can give, it is unnecessary for me to give a report of them here. From what I have seen of the formation of the country this year, and also of the prospects now obtained, I feel more convinced than I was last year, that the quartz mining in the Big Bend will be most extensive, but it will take time to develop it. The first quartz vein in this district was discovered on McCulloch's Creek, about the 1st of August last, by Mr. Wm. Hick. Other veins of a rich character have since been prospected in the same locality.

The universal want of means, the depression caused by the failure of the early rush into these mines, and the extremely difficult nature of the country for prospectors to move about in without trails, have been the reasons why hardly any prospecting was done this season, except on the bars of the Columbia and a few creeks comparatively easy of access.

Before closing this report, I think it but fair to mention that the different members of my party always gave me their best assistance and took a real interest in the various occupations in which they were engaged, without which, in works

so varied and scattered, and where they were often necessarily left much to their own judgment, it would have been impossible for me to have brought to a satisfactory termination.

I remain, &c.,

W. MOBERLY.

NOTE.—For a rough and temporary trail, a line might be got by the valley of Gold River, and thence down a tributary and a portion of the main valley of Bushey River to its mouth, striking the Columbia above the Boat Encampment, in Latitude $51^{\circ} 44' N$. I have not been over the whole of this line, and am therefore unable to give you a description of it throughout. A miner (Mr. Keynton) prospecting up Gold River, states that he reached the divide between the head waters of the above streams on the 24th June, and found snow on it.

W. M.

No. 2.—MR. TURNBULL TO MR. MOBERLY.

Depot Camp, Columbia River,
31st July, 1866.

SIR,—I have the honour to submit for your information the enclosed Sketch and following Report, relative to my exploration of the Eagle Creek Pass, viz.:—

From the south arm of the Shuswap Lake I proceeded up the valley, as instructed by you, examining on my way both its banks, as to the practicability of roads, &c., and also keeping in view the river, in order to see what facilities it offered in the way of steamboat navigation, &c.

The valley I found to be very wide and almost level, and thickly covered with a forest of pines, firs, and cedars, and underbrush of such density as to be almost impenetrable, the prickly mountain ash growing in every direction in the most luxuriant abundance. The mountains on both sides are sloping, and also thickly covered with tall pines and firs; in places, however, particularly at the mouth, and about ten miles up stream, on the north side, the slopes are very lightly timbered and covered with excellent quality of feed. Small swamp grass meadows are also interspersed along the bottom, where feed may be had.

The north bank of the valley is lined by a continuous line of low gravel benches, along which a road or trail may be carried on almost a dead level, and with the certainty of being solid and dry the whole of the year round.

The streams putting into the valley are few, all small, and well confined to deep narrow channels, and not spreading all over the flats as is generally the case in all mountain districts. The benches I have mentioned, are more free from standing and fallen timber than the lower flats, and are in every respect better calculated to prove the more eligible site for a road or trail.

The stream along the bottom meanders very much, intersecting the valley in every direction, and almost sweeping each bank alternately; it averages about four chains wide, with easy current, and is in every respect quite navigable for river steamboats at high stage of water, for at least fifteen miles in a direct line up the valley, and by cutting out snags, &c., which at present obstruct the river above this point, it may in all probability be found to be navigable up to the forks, which point I consider to be about twenty miles from the mouth. About four miles from the crossing of the forks a mountain torrent is crossed, which falls with great rapidity, in a succession of low falls, into the main stream; a low bridge, about 60 feet in length will be here required; this creek is the only one where bridging of any consequence is necessary.

Leaving the latter stream, the trail will have to traverse round the face of a very broken hill side, much encumbered with fallen logs, thick brush, and stony slides, for about $1\frac{1}{2}$ miles, owing to a very extensive swamp meadow at bottom, after which a level, lightly timbered bench is again struck, which leads direct to the crossing (see plan at D. and C.) of the North Forks. From the latter point to the mouth, a distance of about twenty miles, I am satisfied that a ten foot forest clearing can be made, with a narrow graded trail, for about \$150 per mile, at an average.

On arriving at the crossing of the North Forks, I found that it was impossible for me to cross over, without running the risk of losing the whole of my provisions

and stores, in consequence of the width and rapidity of the stream, and knowing that you were desirous of ascertaining the terminus of the North Fork, I proceeded up the valley, examining both banks as before. As I have already given you a verbal relation of my journey up, I will be very brief with my description of it, and refer you to my Journal for all details if necessary.

Half a mile above point D. (see plan at C.) the valley narrows suddenly, and becomes a canon for about half a mile; the river falls with great rapidity, and is confined to a very narrow channel by low, broken, precipitous bluffs on each side; leaving the latter canon, it again opens out and assumes the same character as before described. The flats on both sides are low, and lightly timbered, and offer every facility for any description of road building. For the next twenty miles the valley continues thus. It then begins to narrow and rise with great rapidity, and about three miles further on the stream terminates in a small pond or swamp lake, at which point I found my Barometer to register 26.400, somewhere about 2,000 feet above the level of the Shuwap Lake. On this summit, and in fact all along the route, the snow had entirely disappeared, and judging from the luxuriant growth of the grass, shrubs, and underbrush, I should say had been off for some considerable period. Immediately beyond the lake, the water falls gradually to the northward, the valley still continuing as before; four miles on, it turns sharply to the westward and joins the same stream up which the present Government trail is now carried, somewhere about the Frenchman's, near the twenty-one mile house. At the point where it turns to the west, several precipitous valleys or gulches join it from the north and east, one of them, the largest and lowest, heads from the same source as the present divide of the Government trail.

Having thus determined the source of the North Fork, I joined you next day at Kirby's, where I received instructions from you to at once proceed to the Eddy (on the Columbia) and complete the exploration of the Eagle Creek Pass, up to the point where I had left off, and having now completed the examination of said valley, I beg to lay before you the following Report respecting it.

Having *cached* my spare provisions, &c., at the Eddy, I proceeded up the valley (on the morning of the 20th July), and found that it answered to your description in every respect. Up to the summit (by Barometer 27.920) I estimated the distance at seven miles, and by keeping on the north side of the valley, close to the base of the mountains, a trail or road can be brought on almost a dead level, traversing the whole way over dry, solid gravel, lightly timbered flats, very little encumbered with underbrush or fallen logs. At one point, about four miles from the Columbia, large granite boulders are strewn about the benches in every direction, but by keeping well to the base of the mountains they are entirely avoided. The valley is very wide at its mouth, and rises with a grade not perceptible; it gradually narrows on approaching the summit, at which point it is not more than a $\frac{1}{2}$ of a mile wide, and closely hemmed in by high perpendicular mountains, covered to their summits with a dense growth of pines and firs. The bottom, immediately adjoining the stream, is covered with a dense growth of willows and underbrush of various descriptions, with occasional patches of good swamp grass meadows.

As you are already well acquainted with this portion of the valley, it is useless for me to further describe it, particularly as no difficulty in the way of road building exists whatever.

About $\frac{1}{2}$ of a mile westward from the summit, the first lake is struck, which is about forty chains in length, by about twenty-five chains in width; it is encompassed by high spurs from the main mountain range, and which (on the north side) rise with almost precipitous slopes for a considerable height. The south shore is however, not so rocky nor precipitous, as to prevent a good pack trail being built round, with very moderate cost, by following the latter shore; one bluff only, falls perpendicularly to the water's edge; 100 feet above, however, it forms into a narrow sort of rocky, jagged bench, along which a safe pack trail can be built without incurring any serious blasting; the only blasting that I apprehend, will consist of loose croppings, and the removal of isolated jagged points. The latter bluff will be about two chains in length, if crossed where I have mentioned. After which, up to the west end of lake, the trail can be brought down gradually to the water's edge, along the face of a steep, wooded, rocky slope, but without the least blasting whatever. I estimate the cost of a trail round this lake at about \$650. The next lake (No. 2), is situated about one mile further west, and is connected with the latter by a wide meandering stream; the north side of the valley is much cut up with dried up water channels, which together with the abundance of drift timber, &c., which is strewn around in every direction, prove plainly that at certain seasons it is well washed by mountain torrents. There are no such evidences however shewn on the south side of the valley, and it is, in consequence, the most eligible line to adopt. Towards the head of lake No. 2, the bottom of the valley is very swampy, and covered in places with good feed; the latter lake is about forty chains in length by about thirty in width, and is not bound on each side with such steep and precipitous banks; the south shore appears the least

formidable, a low, narrow, broken, rocky bench stretches nearly from one end of the lake to the other, along which an Indian trail is plainly marked, and by a little blasting here and there, low walling, cribbing, &c., I am confident that for about \$600 a good serviceable pack trail can be built along this broken bench.

It may be found, on more detailed examination, that by keeping high up the hill, say 120 feet, a better route may be adopted when the trail may be built, without any short and winding pitches, which will be necessary by the lower route.

From the latter lake the valley becomes a little wider, the banks less rocky and precipitous, and continues so for about 8 miles up, at which point Three Valley Lake is struck. The trail along the latter mentioned three miles will traverse over solid dry flats, covered with a medium growth of timber nearly the whole way. At one point, about 30 chains from the third lake, the bottom is completely swamped, in consequence of beaver dams, &c., in order to avoid which the trail will have to be brought round the face of a steep, stony, side hill for about 8 chains; after which a dry bench is reached, and which extends to the head of Lake No. 3.

At the head, or east end, of the latter lake, the valley is still narrow, and bound on each side by rough precipices for about three-quarters of a mile, when it then gradually becomes wide, and turns sharply to the northward. The north bank is unquestionably the best line to follow, as all the bluffs, with two exceptions, terminate in low steep slides, sufficiently above high-water mark to leave ample room for a good trail, without incurring any blasting. The two bluffs which I have mentioned rise from the water's edge, but as they are not more than 70 feet above high-water mark, and with narrow flats on top, the trail can be easily brought over them. From the head of the lake to where it bends to the north, a trail may be easily built, and without incurring much blasting, but heavy grading over rough, broken, hill-sides will be necessary, where cribbing and walling will be required. From the bend, low timbered benches extend the whole way to the end of the lake.

This lake, namely Three Valley Lake, is about $1\frac{1}{2}$ miles long, by about 40 chains in width. The cost of trail by the route which I have described, I estimate at about \$800.

To make a trail on the opposite shore, the expense would be great, as the bluffs rise from the water's edge to a considerable height, and extend for nearly three-quarters of a mile without a break.

From the summit of a high mountain, situated immediately north of the bend of the lake, which I ascended, I obtained a full view of the whole neighbourhood, and could trace the valley shown on plan, stretching towards Shuswap River. In every respect it bore a very favourable appearance for any description of road: it being wide, low, and bound on either side by sloping hills. Its bottom appeared covered with very extensive tracts of meadow land. I also saw a second low valley which I have shown on sketch, emptying into the latter; and which I could trace to the Columbia River. This valley also appeared low and wide, and evidently leads somewhere in the direction of the Arrow Lakes.

The Three Valley Lake I was led to believe was the last in the valley; but, after about a mile's travel, over lightly timbered flats, I came to the 4th Lake (see plan), which I found is about 1 mile in length, by about $\frac{1}{2}$ a mile in width, and bounded on each side by low benches, over which the trail may be brought at the usual average cost.

From the latter lake to the Forks, there are no other lakes, but there are numerous very extensive swamps and meadows, which at the present time are much covered with water, which will afford abundance of feed for animals, so soon as the water falls to a little lower stage. From the lake to the Forks, the character of the country is very similar, as regards trail building, to the portion between the Forks and the Shuswap Lake; the only difference being that the valley has not such a wide bottom. There are two creeks to cross requiring bridging, between 40 and 60 feet in length. The trail throughout this portion may, like the other parts, be brought on almost a level, and will be perfectly dry and free from swamps the whole season round.

I have shewn in the accompanying sketch two crossings of the North Forks; the one at D. will require a bridge about 200 feet in length, and will be very difficult to build, so as to withstand the very rapid current, and heavy drift timber which passes continually down during high water. At point C, where the canon commences, and which I have already described, a bridge 60 feet in length will span the river. The approach will doubtless be rather expensive, owing to the broken and rocky nature of the hill side; but, on the whole, it will cost considerably less than by the lower route, and will be much more permanent afterwards.

To conclude, I beg to say that the valley throughout is unquestionably the best that can be found through the Gold Range, as it is well suited for any description

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of trail, road, or railway, and which would be open for traffic nearly the whole year round.

ABSTRACT OF ESTIMATED COST.

From Shuswap Lake to the Forks, including bridge	\$4,000
" The Forks to the west end of Three Valley Lake ...	2,800
" The 3 Lakes	2,050
" The Summit to the Columbia River, including the portages between the lakes	2,100
Total.....	\$10,950

I have, &c.,
J. TURNBULL.

No. 3.—MR. TURNBULL TO MR. MOBERLY.

New Westminster,
23rd November, 1866.

SIR,—I herewith forward for your information, a copy of the Journal kept by me whilst employed under your direction exploring through the Gold and Selkirk Range.

I have already forwarded to you a detailed report relative to the practicability of a line of road through the Eagle Creek pass (Shuswap Lake.) All the information that I can give, with reference to my last exploration, between Kootenay Lake and the head waters of the Columbia River, you will find fully detailed in my Journal.

With reference to the latter exploration, I will merely state that I am now fully convinced that no route suitable for a waggon road can be found, south of the Gold Stream Valley, through this formidable range; and from what I have seen of the range, I am almost certain that no route suitable for a waggon road can be found, but by the valley of the Columbia. You will see, by reference to my Journal, that by Creek No. 3 and Toby Creek is the only place where the range can be crossed even with trail. By this route, should it ever be found necessary, a good trail might be made, which would open the country *via* Lake de Truite and Wild Horse; and I am inclined to believe that, at some future time, a trail through in this direction will be found necessary, as I am almost certain that gold will be found in paying quantities all over this section of country. At the present time there are a good number of men prospecting, both about Lake de Truite, the head waters of Kootenay Lake, and the Kootenay River. Should it be found necessary to build trails through in this direction, I have only to say that the cost of construction will not be great, as there are no difficulties whatever in the way.

I forward with Journal, tracings showing the different valleys explored, and will, if you think it necessary, give more elaborate plans or report at any time you may require.

I am, &c.,
J. TURNBULL.

No. 4.—JOURNAL OF THE SECOND YEAR'S WORK AND EXPLORATION IN THE COUNTRY BETWEEN THE 49° AND 53° PARALLELS OF N. LATITUDE AND THE 115° AND 120° MERIDIANS OF W. LONGITUDE, BY W. MOBERLY.

Wednesday, March 28th.—Having received instructions, in a letter dated the 26th inst., from the Chief Commissioner of Lands and Works and Surveyor General of British Columbia, to proceed to the Columbia River, and resume "the construction and exploration of trails, &c., &c.," in that District, I left New Westminster at noon to-day, with the party appointed to accompany me, on board the steamer Lillooet, bound for Yale. We reached Coe's Ranch at dark, and lay there for the night.

Thursday, March 29th.—Arrived at Yale at 9 a.m. Arranged with Mr. F. J. Barnard to convey my party and baggage to Ashcroft. Left Yale at 2 p.m., and stopped at Chapman's Bar for the night. Mr. Thomas Spence accompanied me along the road.

Friday, March 30th.—Travelled from Chapman's Bar to Kanaka Flat.

Saturday, March 31st.—Left Kanaka Flat at 6 a.m., and reached Lytton at 8 a.m. Went up to the Magistrate's office and compared book containing copies of all the land records in the Lytton District with the original book of records. I found it to be a correct copy, with the exception of some erasures; certified it to be so, and wrote to the Surveyor General, forwarding my letter and the above book to him by mail. Left Lytton at 2 p.m., and reached Cook's Ferry in the evening, where I stopped for the night.

Sunday, April 1st.—Examined Spence's Bridge, which I found to be in good order. My party not having all arrived, I left at 9 a.m. for Ashcroft. Found the road at the large rocky bluff, 8 miles above the ferry, blocked up with a slide of rocks. Mr. Spence having come on to Cook's Ferry, at once sent up some men to clear it, and repair a bridge that had been damaged. I took the buggy I was in to pieces, and packed it over the rocks, and then went on to Ashcroft where I arrived in the afternoon. Ordered pack horses to be brought in. Mr. G. B. Wright arrived in the evening.

Monday, April 2nd.—Left in the morning, with Mr. G. B. Wright, to inspect the waggon road from the Buonaparte to Savona's Ferry. Went as far as the rocky bluff on this road, and returned in the evening to Ashcroft. Gave Mr. Wright his first and second certificates on account of his contract. Wrote to Mr. Trutch. My party all arrived at 11 p.m.

Tuesday, April 3rd.—Busy nearly all day getting pack animals ready. Left Ashcroft at 4 p.m., and travelled to Sandford's (Boston's), where we slept. Gave Messrs. Cornwall a draft on Lands and Works for \$117.

Wednesday, April 4th.—Went up as far as Savona's Ferry, to inspect the rest of Mr. Wright's road; returned, and stopped over night at Deadman's Creek.

Thursday, April 5th.—Gave Mr. Wright his third certificate on account of his contract. Gave Mr. F. J. Barnard a draft on office of Lands and Works for \$377.59. Travelled on to Kamloops, which place I reached with my party in the evening. On my arrival I learnt that the Shuswap Lakes were still frozen.

Friday, April 6th.—Remained at Kamloops, as there was no boat going until the next day. Had tents made, and supplies, &c., prepared.

Saturday, April 7th.—Dispatched the supplies, and all the party, with the exception of Turnbull, in Lavean's boat, for Seymour. Remained at Kamloops for arrival of express.

Sunday, April 8th.—Learnt from a boat that came down from Little Shuswap Lake, that the lakes were still frozen over. Remained at Kamloops.

Monday, April 9th.—Remained at Kamloops. No express.

Tuesday, April 10th.—Remained at Kamloops.

Wednesday, April 11th.—Left Kamloops and rode to Lumby's Ranch, where I stopped for the night.

Thursday, April 12th.—Travelled to Little Shuswap Lake, where I overtook my party. Ice broke up on Lake.

Friday, April 13th.—Lavean's boat having arrived this morning from Kamloops, to which place she had returned for another load, I left with all my party. We reached the foot of the Great Shuswap Lake, and camped. I here arranged with several Shuswap Indians to accompany me to Seymour, for the purpose of packing on the trail.

Saturday, April 14th.—In the morning I found that Nesquimith, the Shuswap chief, had been up during the night and stopped the Indians I had engaged the previous evening from accompanying me. I left at 8 a.m., but on arriving at Express Point, it blew so hard we were obliged to camp. Very heavy rain in evening.

Sunday, April 15th.—Started at 6 a.m., and reached a point on the N. W. arm of Great Shuswap Lake, about 15 miles below Seymour; camped.

Monday, April 16th.—Left camp at 6 a.m., but was immediately stopped by ice; obliged to camp. Lavean returned to Kamloops. W. Moore's scow arrived in the evening, but he would not agree to take us to Seymour. Bathed in lake; not cold.

Tuesday, April 17th.—Remained in camp. Took latitude, which was found to be 51° 5' 4"; corrected watches.

Wednesday, April 18th.—Remained in camp. In the evening, J. Carragher (Big Jack) arrived with two canoes. Arranged with him to convey party to Seymour.

Thursday, April 19th.—Left camp at 7.30 a.m., and arrived at Seymour at 7.30 p.m. Was obliged to break our way through the ice the whole distance. A few showers during the day.

Friday, April 20th.—Pitched camp; dried cargo; prepared instruments for survey of town site, &c.

Saturday, April 21st.—Set Turnbull at work to survey high and low water mark of reserve, &c. Fine in the morning, but rained in afternoon. The first express arrived in the evening. Could not get Indians to pack.

Sunday, April 22nd.—Remained in camp. Several boats arrived with miners and goods. Wrote to Messrs. Smith & Ladner about the storing of my supplies. No Indians to be got to pack to Columbia River.

Monday, April 23rd.—Continued survey of town site. Weather fine and warm. Lavean's boat arrived.

Tuesday, April 24th.—Sent Mr. Hick out on trail to complete bridges. Rained steadily all day. Moore's large scow arrived, and reported the loss of the Hudson Bay Company's steamer Labouchere.

Wednesday, April 25th.—Engaged part of the day with party about town lots. A good deal of rain. Mr. O'Reilly arrived in the evening, and brought letters, and \$2,500 from the Surveyor General.

Thursday, April 26th.—Wrote to the Surveyor General. Busy about town lots. Rained most of the day.

Friday, April 27th.—Messrs. Gaggin and O'Reilly left in forenoon. Sent Mr. Layton back to Lytton for Indians.

Saturday, April 28th.—News arrived to-day that the steamer Forty-nine had reached the Dalles de Mort.

Sunday, April 29th.—Remained in camp.

Monday, April 30th.—Engaged about town survey.

Tuesday, May 1st.—Engaged about town survey.

Wednesday, May 2nd.—Completed survey of town site. Settled accounts. Took latitude of Seymour, which was found to be $51^{\circ} 13' 41''$ N. Newton's Barometer read 28.40; Elliott's do. 28.90. Weather clear and fine.

Thursday, May 3rd.—Completed plans of Seymour. Paid off some Indians who had been packing for Hick's trail party; paid Lavean and Romano. Wrote to Surveyor General and Layton. Prepared loads to take to the Columbia River. Several boats arrived with miners and goods. Weather clear and hot.

Friday, May 4th.—Started at noon, with Turnbull, Howell, and Perry, for Columbia River. Reached French Prairie in the evening, and slept at Faujas. Advanced Mr. Hick, on account of Shuswap trail, \$400. Barometer in evening 28.00. Snow from six mile hill to French Prairie, 2 to 3 feet in depth.

Saturday, May 5th.—Started at 8 a.m., and reached the 19 mile house, which is at bridge over north fork, and camped. Weather clear and fine; barometer 27.50; 3 to 4 feet of snow on portion of trail passed over to-day.

Sunday, May 6th.—Remained in camp; bought 41 lbs. of flour. Took latitude, which was found to be $51^{\circ} 23' 45''$; barometer 27.50; weather clear and fine.

Monday, May 7th.—Started at 5 a.m., and reached the second lake from Seymour, on the mount, where we camped. Found the snow got deeper and deeper as we ascended the mount, its depth at this place being about 10 feet. Barometer in evening 25.50; weather clear and very hot.

Tuesday, May 8th.—Left camp at 6 a.m., and reached a point about 7 miles from Kirby's Landing, on the Columbia River. Snow on the summit, in places, about 15 ft. in depth. Barometer on summit 24.25; snow hard and good for travelling until 9 a.m., when it got soft and almost impassible; barometer at camp in evening 24.40.

Wednesday, May 9th.—Left camp at 6 a.m., and reached the Columbia River at 9 a.m. The traveling was very bad as the snow was very deep and soft. To clear away the snow now would cost such a large sum, that under existing circumstances it would be absurd to incur that expenditure. Rained a little during the afternoon; barometer at Columbia River 28.85. Purchased some provisions and a boat for \$30. Saw many miners from French and McCulloch's Creeks, who said no work was going on, as they were all in much too early to mine. Prepared to send Howell and Perry down to the Eagle Pass to find if there was any snow on the divide.

Thursday, May 10th.—Sent Howell and Perry off for Eagle Pass. Fitted boat to pull four oars. Received letter from Mr. O'Reilly; wrote several letters. Discharged two Indians that packed for me.

Friday, May 11th.—Left in a boat with three Indians for Gold Creek. Stopped at Steamboat Landing (La Porte), 2 miles below the Dalles de Mort, where I received a letter from Mr. Jane, with lists of all the tools, &c., forwarded by him, which I found stored with Mr. O. T. Nichols. Purchased a few supplies, and engaged a man named Buckley to assist us up the river; went up to the foot of Death Rapid, and camped. Some men mining on a small flat, $\frac{1}{2}$ of a mile below La Porte, were making, with sluices, about \$6 a day to the hand.

Saturday, May 12th.—Started at 7.30 a.m. Poled and dragged the boat up the Dalles de Mort; reached a point $\frac{1}{2}$ a mile below the mouth of Gold River, and camped; was very unwell all day.

Sunday, May 13th.—Unable to get out of bed to-day.

Monday, May 14th.—Finding I am getting worse and shall probably be laid up for some time, I sent Turnbull to locate the line for trail to French and McCulloch Creeks. Weather wet, cold, and chilly. Buckley returned in evening, with boat. Mr. J. White arrived in evening from Wild Horse Creek.

Tuesday, May 15th.—In bed all day; rained hard; Mr. White remained with me.

Wednesday, May 16th.—Sent Buckley and Dick to Wilson's Landing with White and Huff. Rained most of the day very heavily.

Thursday, May 17th.—In bed; weather windy and chilly.

Friday, May 18th.—Still laid up; weather wet, cold and windy.

Saturday, May 19th.—Mr. O'Reilly came to see me. Showery and windy. Mr. O'Reilly returned in the afternoon to Wilson's Landing.

Sunday, May 20th.—Remained in camp, much better. Mr. R. T. Smith arrived at 1 p.m., and shortly afterwards Turnbull and party came in, having decided on a line for a trail from French Creek to the mouth of Gold River; he could not find any pass through the mountains so as to strike into the valley of Downie Creek. Heard of loss of boat at Dalles de Mort with 17 men.

Monday May 21st.—Started on return to La Porte (Steamboat Landing); dropped boat over rapids, and reached La Porte at 2 p.m., where I found Howell and Perry, who had returned from Eagle River Pass. They found no snow on the divide of that pass, and are of opinion it had disappeared a month before their arrival (12th May) on it. Got tools, &c., ready to commence opening a trail to French Creek, and then went down with two Indians to Kirby's Landing, to get up some provisions for road party, and camped at that place.

Tuesday, May 22nd.—Remained at Kirby's Landing and wrote to the Colonial Secretary, the Surveyor General, and Mr. Layton. Had supplies got in readiness to forward to La Porte.

Wednesday, May 23rd.—Sent up supplies in boat to the Steamboat Landing. Examined line for trail from Kirby's to La Porte. Purchased some additional supplies at Steamboat Landing. Established road camp, and hired labourers.

Thursday, May 24th.—Commenced work on trail with about 30 men; Mr. Howell in charge as foreman. Wrote to Surveyor General. Capt. L. White, of the steamer Fortynine, called on me this evening.

Friday, May 25th.—Remained with the men working on trail most of the day. Sent Perry and Turnbull to finish the blazing of line to French Creek. Left Howell's camp in evening for Hick's camp; remained over night at Kirby's Landing.

Saturday, May 26th.—Crossed mountain to Hick's camp (20 mile house). Received letter from Mr. Trutch, authorizing a further outlay on this trail. Found the snow on the mountain had melted away very much. Sent six dozen shovels, &c., from Kirby's landing to the summit. Camped at 20 mile house. Made contract with Wm. Deitz, to pack a quantity of supplies from Seymour to 21 mile camp (Layton's camp).

Sunday, May 27th.—Moved Hick's camp to foot of mountain. Layton and Indians arrived; sent them on to Hick's camp with loads. Wrote to Mr. Birch and the Surveyor General; enclosed voucher for \$376 75 to Surveyor General.

Monday, May 28th.—Had all the supplies stored at 20 mile house moved to Layton's camp, and a small store shed built for their accommodation, and those that are to be packed out from Seymour.

Tuesday, May 29th.—Went in morning to the Dépôt camp, and moved all the men and a portion of the supplies to summit of mountain. Part of Hick's men commenced clearing away the snow. Sent eight Indians, with loads of provisions for Howell, over to Kirby's landing. Camped for night at Layton's camp.

Wednesday, May 30th.—Went up to summit in the morning and camped with Hick's men; remained there the rest of the day to see how they got on with the snow clearing, and instructed them how to cut the snow to save the waste of labour. Engaged and set about twenty more men at work on snow.

Thursday, May 31st.—Left camp in the morning and travelled to Kirby's landing, where I camped.

Friday, June 1st.—Proceeded from Kirby's landing to Howell's camp, where I remained all night. Inspected trail from Kirby's to Steamboat Landing, which I found would be opened for pack animals the next day; found Howell had about eight miles of trail from the Steamboat Landing opened.

Saturday, June 2nd.—Remained with Howell's party all day on the trail, and had camp moved to a point about nine miles above La Porte.

Sunday, June 3rd.—Left Howell's camp and proceeded a part of the way to French Creek, through the woods; camped. Mr. McMillan brought me letters in the evening from Mr. Trutch and Mr. Howse, requesting me to go over to Seymour and attend to the sale of lots to take place on the 9th instant. As I was on my way to French Creek to raise money to pay off a large portion of the men employed on the snow clearing, and was unable to return so as to reach Seymour by the 9th, wrote to that effect to Mr. Trutch and Mr. Howse. Mr. R. T. Smith came and stopped at my camp to-night. Heavy rain.

Monday, June 4th.—Travelled all day through woods, and reached French Creek in the evening, where I camped. Instructed Mr. Turnbull to employ a gang of men, and return and cut out timber and underbrush along line of trail from French Creek to meet Howell's party.

Tuesday, June 5th.—Arranged with Mr. O'Reilly about money matters and advertising for lease of Ferry on Gold River, &c. Left French Creek in the afternoon, and examined the different places where I thought it advisable to cross Gold River with trail; decided upon crossing just below the mouth of McCulloch's Creek, and camped there.

Wednesday, June 6th.—Set Turnbull at work with a party of about twenty-five men, to open the trail from French Creek down in the direction of Howell's party, and in the evening returned and camped with Howell's party.

Thursday, June 7th.—Travelled from Howell's camp to Kirby's Landing. Met Perry with Hick's report.

Friday, June 8th.—Waited at Kirby's Landing for arrival of Lytton Indians with supplies; they came in at 2 p.m. Set Perry at work to have supplies forwarded to La Porte. Made up accounts of Lytton Indians, and paid them off. Paid off Turnbull's Indians. Balanced accounts, &c. Mr. McMillan arrived in evening with letter from Mr. Trutch, requesting me to meet him on the 9th (to-morrow), at the Depot camp.

Saturday, June 9th.—Crossed mountain to Depot camp, and met Mr. Trutch there.

Sunday, June 10th.—Remained at Depot camp. Made up sundry accounts and wrote memorandum for Mr. Trutch. Mr. Trutch went up to summit of mount to-day with Mr. Layton. Paid Mr. Trutch \$555-37½ to take up some of Hick's orders that had gone into Seymour, and \$385-68 for Wm. Wade.

Monday, June 11th.—Paid Mr. Layton \$692 to pay Wm. Deitz and J. Carragher's accts. Mr. Trutch left for Seymour, and immediately afterwards I started back for the Columbia River, and reached Kirby's Landing in the evening. Paid Wm. Hick \$500, and, as snow clearing would be finished to-night, instructed him to keep only about 15 men employed, and return and put in corduroys and improve worst portions of trail over the mountain.

Tuesday, June 12th.—Met Perry, who had been employed forwarding supplies to Howell's camp. Instructed him to get ready to explore easterly branch of the Ille-cille-waut River. Purchased a canoe for him at Steamboat Landing. Sent two men to bring supplies from Depot camp for his trip. Busy with accounts, &c.

Wednesday, June 13th.—Received word that Deitz's train of horses would cross the mountain to-day with supplies for me, therefore waited for their arrival at Kirby's Landing. The two men sent to Layton's camp for supplies for Perry arrived in the afternoon. Engaged Merriman to accompany Perry, and started them off for Ille-cille-waut River. Mr. Romano and the horses with my supplies arrived in evening. This is the first train that has crossed the mountain from Seymour this year.

Thursday, June 14th.—Left Kirby's Landing, and travelled to Howell's camp, which I found moved to a point about four miles below the Gold River Ferry; remained here for the night.

Friday, June 15th.—Remained at Howell's camp until 12 noon, making up accounts, &c. Advanced Mr. Howell \$250, and started for French Creek, which place I reached at 7 p.m. Found Turnbull had completed trail from a point about 14 miles below the Ferry on Gold River to French Creek, and had laid out a portion of the town.

Saturday, June 16th.—Remained at French Creek. Visited several claims; found some were getting pretty good pay out, and several others nearly ready to begin washing. Mining prospects greatly improved since my last visit to French Creek. Had some town lots laid out.

Sunday, June 17th.—Remained at French Creek.

Monday, June 18th.—Remained at French Creek. Wrote to Mr. O'Reilly relative to Reserves at Ferries on Gold River and Columbia River at La Porte; also at the mouths of Eagle River and Skoukoula Creek. Settled all accounts for work done on trail by Turnbull's party, and paid the men their wages. Balanced accounts with Mr. O'Reilly. Completed survey of town lots.

Tuesday, June 19th.—Borrowed \$1,500 from Mr. O'Reilly on Government account, and left French Creek with Turnbull. We went as far as Howell's camp, and stopped there for the night. Advanced Mr. Howell \$600 to pay wages.

Wednesday, June 20th.—Travelled from Howell's camp to Kirby's Landing.

Thursday, June 21st.—Remained at Kirby's Landing, and discharged Columbia River Indians. Arranged for Turnbull to leave next day for Seymour, to locate line for road through Eagle River Pass.

Friday, June 22nd.—Dispatched Turnbull's party to Shuswap Lake, with instructions to meet me in three weeks at The Eddy, on Columbia River. Spent rest of day at accounts and writing report to Surveyor General.

Saturday, June 23rd.—Remained in camp, busy with accounts.

Sunday, June 24th.—Remained in camp, sick. Mr. R. T. Smith arrived from Seymour.

Monday, June 25th.—Not well. Mr. Cornwall arrived in the evening. Wrote letters to Surveyor General, which I forwarded by Mr. Cornwall, together with vouchers. W. Hick came to see me.

Tuesday, June 26th.—Received letters from Turnbull and Layton. Paid W. Deitz balance of account for packing from Seymour to 21 mile camp.

Wednesday, June 27th.—In camp, sick.

Thursday, June 28th.—Very heavy rain and wind storm. Trails blocked up with fallen timber. Made oars for boat.

Friday, June 29th.—Employed getting fallen timber cleared out of trail between Kirby's and Steamboat Landings. Sent word to Howell to set his party at work to clear fallen timber out of French Creek trail.

Saturday, June 30th.—Fitted up boat for trip down Columbia River. Wrote to Layton to hurry over supplies. Examined fallen timber on trail above La Porte.

Sunday, July 1st.—Ordered Mr. Hick to discharge most of his party on the mountain, and close the work as soon as possible. Set another party at work on fallen timber, above La Porte.

Monday, July 2nd.—Went up to work going on above La Porte, and remained at Howell's camp for the night. Met Mr. O'Reilly there.

Tuesday, July 3rd.—Returned to Kirby's Landing; men have made good progress in clearing away fallen timber.

Wednesday, July 4th.—Forwarded supplies for men working at fallen timber. Columbia River attained its greatest height to-day.

Thursday, July 5th.—Remained in camp, writing, &c.

Friday, July 6th.—Went up to fallen timber and discharged some of the men. Received letter from Mr. Trutch.

Saturday, July 7th.—Wrote to the Surveyor General. Busy with accounts. Received and stored a cargo from Layton's camp.

Sunday, July 8th.—Remained in camp writing. Sent train back to Layton's camp for another load of goods.

Monday, July 9th.—Discharged the larger part of Howell's party.

Tuesday, July 10th.—Heavy rain in forenoon. Settled accounts with R. Howell, and took over pay lists, &c., from him.

Wednesday, July 11th.—Went up to La Porte, and took up a number of tools, &c., &c., that had been used on the Shuswap trail, and stored them with Duncan Robertson.

Thursday, July 12th.—Train of goods arrived from Layton's camp, which I stored at Kirby's Landing. Prepared to go down Columbia River to meet Turnbull at the Eddy.

Friday, July 13th.—Rained hard most of the day. Perry returned from his trip up the east fork of the Ille-cille-want River. He did not reach the divide, but reported a low, wide valley as far as he went. His exploration has not settled the point whether it would be possible to get through the mountains by this valley, but I fear not. He ought to have got on the divide, and his failure is a great disappointment to me. He reports a most difficult country to travel through, owing to fallen timber and underbrush of a very thick growth. Learnt that the steamer Forty-nine had been nearly lost in the Little Dalles, four days ago, and is now at the foot of the Dalles undergoing repairs, preparatory to her return to Fort Shepherd.

Saturday, July 14th.—Mr. O'Reilly started down the Columbia to-day, in a boat, to catch the Forty-nine. I sent Perry down (not being able to go myself) with supplies for Turnbull, and ten minutes after I had dispatched Perry, I was surprised to see Turnbull come into my camp, he having crossed over with his party from the head of the main branch of the Eagle River.

Sunday, July 15th.—Remained in camp; wrote Mr. Turnbull instructions as to completion of the location of the line of road through Eagle River Pass, and also of continuation of the exploration of country west of Kootenay Lake and the source of the Columbia River.

Monday, July 16th.—Prepared boat and supplies for Messrs. Turnbull and Howell to go down river for the Eagle River and other explorations. Train arrived with stores from Layton's camp.

Tuesday, July 17th.—Dispatched Mr. Turnbull and party down the Columbia River.

Wednesday, July 18th.—Went up to Hick's camp, on the summit of mountain, to close all work on Shuswap trail.

Thursday, July 19th.—Completed some corduroying, and then stopped all work.

Friday, July 20th.—Discharged all the remainder of Hick's men, and took over pay lists and vouchers from him. Forwarded remainder of stores and tools to Columbia River.

Saturday, July 21st.—Waited for Indians to return from Seymour, to pack my things to the Columbia River. Arranged with Mr. A. Townsend to pack surplus stores from Kirby's Landing to French Creek. Much rain to-day.

Sunday, July 22nd.—Heavy rain all day; remained in camp.

Monday, July 23rd.—Travelled from the Summit to Kirby's Landing.

Tuesday, July 24th.—Remained at Kirby's Landing, and forwarded all surplus stores to La Porte.

Wednesday, July 25th.—Heavy rain; remained at Kirby's Landing.

Thursday, July 26th.—Remained at Kirby's Landing and completed sundry accounts. Steamer Forty-nine arrived this evening.

Friday, July 27th.—Remained at Kirby's Landing; raining.

Saturday, July 28th.—Went from Kirby's Landing to French Creek.

Sunday, July 29th.—At French Creek.

Monday, July 30th.—Paid off Perry, and advanced Hick \$100 on account. Tried to sell surplus stores; could not get cash for them.

Tuesday July 31st, to Friday, August 3rd.—At French Creek; disposed of a few goods.

Saturday, August 4th.—Received letter from the Surveyor General, instructing me to go to Kootenay and repair Fort Shepherd trail, &c. Wrote note to Hick to come back from his quartz prospecting on McCulloch's Creek.

Sunday, August 5th.—Saw Mr. Hick, who had discovered a vein of quartz containing gold on the side of the mountain to west of McCulloch's Creek; this vein is reached by going up McCulloch's Creek about four miles, and then up the dry bed of a mountain torrent for nearly a mile, on the westerly side of McCulloch's Creek. Arranged with him to meet me at La Porte, and go down in steamer Forty-nine to Fort Shepherd.

Monday, August 6th.—Travelled from French Creek to La Porte.

Tuesday, August 7th.—Remained at La Porte waiting for arrival of steamer Forty-nine; she arrived in the evening.

Wednesday, August 8th.—Remained at Steamboat Landing. Hick arrived, and brought specimens of quartz. Wrote to the Surveyor General, and forwarded quartz specimens, and Turnbull's report and sketch of the line of road through Eagle River Pass, which I had received yesterday by the steamer Forty-nine.

Thursday, August 9th.—Left La Porte at 2 p. m., in the Forty-nine, and ran down to the middle of the Upper Arrow Lake, where we tied up for the night. On our way down left a party of prospectors at the mouth of the Ille-cille-waut River.

Friday, August 10th.—Arrived at Fort Shepherd in the evening. Saw Turnbull and Howell going up river in a bark canoe, about 10 miles above Shepherd.

Saturday, August 11th.—Remained at Fort Shepherd. Could not get horses to pack or laborers to work on trail.

Sunday, August 12th.—Remained at Fort Shepherd. Took latitude with box sextant, which I made $49^{\circ} 1' 7''$ N. Arranged with men to work on Kootenay trail.

Monday, August 13th.—Remained at Fort Shepherd for arrival of some Indians with horses, who had agreed to pack Hick's supplies out to summit of mountain west of Kootenay River.

Tuesday, August 14th.—Left Fort Shepherd, and after many delays caused by the want of saddles and ropes on the Indian horses, reached a point about 7 miles from the Ferry.

Wednesday, August 15th.—Travelled to the crossing of the Salmon River, clearing out all fallen timber as we went along the trail. The wretched Indian horses being completely worn out, I was obliged to stop here for the night. Speared several fine salmon in river.

Thursday, August 16th.—Did not leave camp until 9 a. m., as horses had strayed away. Reached a point about 2½ miles to the west of summit of trail, and there being magnificent grass I camped here. I met Mr. O'Reilly, accompanied by Messrs. C. and G. Oppenheimer, at the foot of the mountain, on their way from Wild Horse Creek to Shepherd. Made several arrangements with Hick and other men for execution of the requisite work on this trail.

Friday, August 17th.—Left camp at 6 a. m., and reached a point within 4 miles of Dewdney's Pass, and camped on bank of large stream. No feed for animals. Speared some very large trout.

Saturday, August 18th.—Left camp at 6 a. m., and reached Kootenay Ferry at noon. Waited four hours for the arrival of Indian horses. Crossed horses over first slough and then went up lake about a mile to get away from the mosquitoes, which were in myriads at the ferry.

Sunday, August 19th.—Spent the whole day in making the crossing of the Kootenay Bottom, and examining banks of stream, sloughs, &c., to see if I could find a better crossing. Camped at a stream about 4 miles beyond the Kootenay Bottom.

Monday, August 20th.—Left camp at 5 a. m., and reached a point about 7 miles east of Goat River crossing, where we found good grass. Our pack horse is nearly worn out, and I fear will not be able to reach Wild Horse Creek. I do not think a proper bridge for mules could be built over Goat River for a less sum than \$2,000.

Tuesday, August 21st.—Started at 7.30 a. m. Passed junction of this trail with the Walla-Walla trail at noon, and camped on bank of the Moyca River, about 8 miles east of Junction. John Edwards met and camped with me. Caught many very fine trout.

Wednesday, August 22nd.—Left camp at 7.30 a. m., and reached a stream 4 miles to eastward of crossing of Moyca River, which is between two fine lakes. Camped here as we found good grass for horses on flat below, to which packers have cut a trail.

Thursday, August 23rd.—Left camp at 8 a. m., and reached Joseph's Prairie at 3.30 p. m., where I camped. This is a very beautiful prairie, and appears to be several miles in extent, and both the prairie and surrounding low hills are covered with rich bunch and other grasses. I think some very good farms will at some future day be brought under cultivation here.

Friday, August 24th.—Started at 8 a. m., and reached Wild Horse Creek at 11 a. m. Was unable to hire horses to go on to the source of Columbia River.

Saturday, August 25th.—Remained at Wild Horse Creek. Took latitude, which I found to be $49^{\circ} 38' 51''$ N. Sent out to try and hire horses from some Kootenay Indians who were camped about 5 miles off.

Sunday, August 26th.—Succeeded to-day in hiring three Indian horses to convey supplies to north end of Columbia Lake. Purchased supplies for journey down the Columbia River, and had packs prepared.

Monday, August 27th.—Left Wild Horse Creek, and reached a creek about 18 miles from it, on trail on the east or left bank of the Kootenay River. The trail to-day was for the most part of the distance over flats and benches which are timbered with scattered red pine, larch, &c., and the whole covered with a growth of bunch grass. On the low flats on both sides of the river are extensive meadows of swamp grass, and a good deal of land well adapted for agricultural purposes. The valley between the Rocky Mountains and those to the westward of the Kootenay River is from 3 to 5 miles in width, and the Kootenay River as seen from the trail appears a fine, placid stream, with a current of about $1\frac{1}{2}$ to 2 miles per hour.

Tuesday, August 28th.—Travelled about 24 miles to-day, still following trail along east bank of the Kootenay River, which passes along some side hills and flats, and is much more broken than that passed over yesterday. Rich bunch-grass the whole distance; more thickly timbered, and not so well watered, after crossing Sheep Creek, as it is south of that creek. I did not see any appearance of an opening through the Rocky Mountains to the eastward, the whole distance from Wild Horse Creek to the point reached to-night.

Wednesday, August 29th.—At about a distance of four miles from last night's camp, I reached the ford across the Kootenay River, which we crossed, and found the water in the main channel of river, which flows through gravel flats, about four feet in depth. Crossing this ford, we followed a trail over a low flat, covered with bunch-grass and scattered red pine, about $1\frac{1}{2}$ miles wide, and found ourselves at the south-east corner of the Columbia Lake, which is the real source of the Columbia River, and from this point to its mouth its length is about 1,200 miles. There appears to be very little difference between the level of the Kootenay River, at the ford, and that of the Columbia Lake. I was unable to get the latitude here, as the sky was covered with clouds. At the head of the Columbia Lake there is much marshy ground. I followed the trail along the easterly side of lake, which passes over rocky bluffs at both ends of lake; the height gained on the bluff at south end of lake being about 500 feet above its level; the other portions of this part of the trail are generally on high benches; bunch-grass all the distance; timber, scattered red pine, fir, &c. Reached a point about 1 mile north of lower end of lake, and camped at a small stream where there was a large encampment of Kootenay Indians, who were engaged curing salmon, which are caught in great abundance here, but are very poor and coarse, and gave me the idea of all being worn out fish. Paid off Indian that packed my supplies, &c., from Wild Horse Creek, and hired three more horses from the Indians here, who had a band of 300 or 400 head, some of which were tolerably good horses.

Thursday, August 30th.—Having taken the latitude of this camp, which I made $50^{\circ} 19' 55''$ N. (the observation was not good and could not be accurately relied upon) I started at 12.30 and travelled some 10 or 11 miles, where I camped. The whole distance travelled to-day was along a very good trail, which generally passed over flats and benches. There were a few unimportant side hills on this portion of the trail. Fine bunch-grass covered all the flats, benches, and side hills. The river bottom is wide, and there is much flooded land, which I see is shewn on Capt. Palliser's map (in part) as a lake, and may, perhaps, be considered in that light. This portion of the valley varies from 3 to 5 miles in width, and there is not any break in the mountain ranges on either side of it, except where a small creek (Toby's Creek, No. 1) falls into it on its westerly side, at the north end of Columbia Lake. This evening the weather was very cold, and there was a strong north wind blowing.

Friday, August 31st.—Left camp at 9 a.m., and travelled about 23 miles, where we camped on a stream, through the valley of which the Indians tell me there is a good trail, at a low elevation, through the mountains to the eastward, and it would therefore lead into the Vermillion Pass. The trail passed over to-day runs along several steep side hills; a fine growth of bunch-grass the whole distance. The timber begins to grow more plentifully than on that portion passed over yesterday. A large creek (marked on our official maps and named Toby's Creek, No. 2) falls into the valley of the Columbia from the westward, about latitude $50^{\circ} 32' 00''$ N. It is by the valley of this creek that the old Indian trail (Kinbasket's trail) to the head of Kootenay Lake was opened, and I was in hopes to have met with or heard of Mr. Turnbull here, who is exploring this line. I, however, could hear nothing about him. According to the latitude given by Dr. Hector, the trail leading into the Vermillion Pass is about 3 miles south of the mouth of Toby Creek, No. 2. Two families of Indians overtook me to-day, and I got some information from them about the country. They tell me that on the flats on either side of the upper Columbia, the deepest snow in winter does not exceed six inches in depth, and that their horses winter there very well. This was in part corroborated by several houses at different points along this trail that I saw, and which had been built by stock owners who had wintered large bands of cattle and horses there a year or two previous to this date. The upper Columbia Indians do not grow potatoes, nor do they cultivate any land; but I could not clearly make out if they grow potatoes on the Kootenay River, between the source of the Columbia River and Wild Horse Creek, but I think not.

Saturday, September 1st.—Left camp at 9 a.m., and reached Kinbasket's crossing at 10.40 a.m. I here paid off the Indian that packed my supplies from the Columbia Lake, and, having taken the latitude of this crossing, which I made $50^{\circ} 47' 03''$, I put all my supplies into a small log canoe, and ran down to Kinbasket's fishing station, about $2\frac{1}{2}$ or 3 miles further down the river, where we found about 15 Indians employed drying salmon, which are caught in large quantities here. These Indians are a portion of the Shuswap

tribe (from Little Shuswap Lake), and settled here about 20 years ago. The banks of the Columbia River are low and swampy, and immediately adjoining the river are covered with a dense and almost impenetrable growth of willows, crab-apple, and other bushes. The water in the river is of a dirty, whitish colour, owing to its flowing through a country where many of the banks of the river are composed of calcareous mud. The character of the valley from this point changes rapidly, the mountains on both sides of the river rising almost from its banks, and generally covered with a dense growth of timber and brushwood, and the bunch-grass almost entirely disappears. The following information I obtained from Kinbaskit, the chief of the Shuswaps, who is the most intelligent Indian I have met with, and from what I saw of the country both before and after he left me, has a thorough knowledge of the country from Wild Horse Creek to the Boat Encampment, and thence to Colville. He says there is a good trail through the Rocky Mountains by the valley of a creek about 8 or 4 miles south of his fishery; also one by a valley which, by his description, must be the valley of Kicking Horse River, described by Dr. Hector. He also says he has taken horses up the valley of Toby Creek, No. 2, nearly to its source, and then leaving them has passed on foot over a high divide to the head of Kootenay Lake; (this is the line Mr. Turnbull is now exploring). It is his opinion that there is not any low divide through the Selkirk Range, with the exception of one from the mouth of the Bushey River, in latitude $51^{\circ} 44' N.$ to the middle fork of Gold River. He has taken horses down the right bank of the Columbia River to the southerly end of Kinbaskit Lake, and thence over the mountains to Jordan Creek, from which point he followed the Indian trail (described by me last year) to Seymour. This trip, however, took him several months to perform.

Sunday, September 2nd.—Remained at Kinbaskit's camp, and, after much trouble, succeeded in purchasing a very bad bark canoe to make the trip down to the mouth of Gold River. Took latitude, which is $50^{\circ} 49' 40'' N.$ Weather very cold at nights.

Monday, September 3rd.—After mending canoe, I left camp at 12.30 p.m., and ran about 5 miles down the river, where we were obliged to land and camp to repair our canoe.

Tuesday, September 4th.—Having repaired the canoe, I left camp at 1.30 p.m., after taking the latitude, which I made $50^{\circ} 54' 32''$, and we ran down about 10 miles, when we met three canoes filled with Indians. I therefore stopped for the night to see if I could get a good canoe from them.

Wednesday, September 5th.—After much trouble, I succeeded in getting a tolerably good canoe from those Indians, and ran about 10 miles further down the river, when we were again obliged to land and patch and pitch our canoes. I took the latitude at this point, which I made $51^{\circ} 04' 02'' N.$, and Kinbaskit pointed out to me a low place in the mountains to the eastward, some 800 feet in height, over which he says horses can be taken into the Vermillion Pass. Having mended the canoes, we started and ran about 10 miles further down the river, and then camped. There is much low, flooded land immediately adjoining the banks of the river, and many sloughs.

Thursday, September 6th.—Ran down to the mouth of Kicking Horse River, where I took latitude, which is $51^{\circ} 18' 19'' N.$ I then proceeded down stream and camped at the mouth of a creek that falls into the Columbia River on its easterly side, about 6 miles below the mouth of Blueberry River. The Indians tell me that the valley of the Blueberry River affords the best pass through the mountains to the eastward (see Dr. Hector's Report). They say the mountain sheep abound on the mountains south of this river, and the cariboo on those north of it, but that the latter is not found south of the mouth of Kicking Horse River; also, that the large salmon (white) do not go further up stream than the Kicking Horse River. The banks of river are now covered with a dense growth of pine, cedar, spruce, fir, birch, &c. Road building along the right bank of the Columbia River, from its source to this point, will be comparatively easy.

Friday, September 7th.—Left camp at 7.30 a.m., and almost immediately got into a cañon where the stream is in many places very rapid and narrow, and the rocks of a slate formation. I think at the stage the water was at when I passed here that a steamer could get through this cañon, but the rapids a short distance below, and which extend some 3 or 4 miles in length, are in many places shallow and full of boulders, and I fear unnavigable. I stopped at the mouth of a large creek which falls into the Columbia on its westerly side, in latitude $51^{\circ} 31' 30'' N.$ The Indians say a trail from Gold River might strike the Columbia at the mouth of this creek, but it would have to be taken over much higher ground than if brought to mouth of Bushey River. They tell me that the south branch of this stream heads near the north branch of the Spille-muchem River, and that the divide between these two streams is low, and would afford a very level line for a trail. Should a trail or road be opened along the east or right bank of the Columbia, it should leave the banks of the main river immediately above the Slate Cañon and, passing through a low valley, strike the main river at a point nearly opposite the mouth of the Bushey River. Timber about the same as on that portion.

Saturday, September 8th.—Ran down to the mouth of the Bushey River, and then crossed over to the opposite side of the Columbia, where I stopped at the mouth of a large stream, about $\frac{1}{4}$ of a mile below the mouth of Bushey River; I here took the latitude, which is $51^{\circ} 44' 45'' N.$ From the mouth of this stream there is a low valley

running in a south-easterly direction to the head of the Slate Cañon. About 1½ miles north of the point where I took the latitude, we came to the head of some very bad rapids (the worst on the Columbia River), which we afterwards ascertained extended some 4 miles in length. There is a trail from the head of these rapids to the lower end of the worst of them. I had my instruments and books packed over this trail, and took the canoes down by the river. After 5 hours hard work, most of the time in the water, we succeeded, after packing, poling, and lowering the canoes over the falls and riffles, in reaching the end of the trail before referred to; we ran about a mile below this point, and camped on the right bank of river. The rocks here are generally of a slate formation. Many steep side hills and some rock would probably be encountered in building a road along the east bank of river; but it might possibly be kept on some high benches that I only partially examined. Timber same as before.

Sunday, September 9th.—Having again repaired the canoes, we left camp at 9-30 a.m., but in running a rapid, about a ½ of a mile below camp, my canoe was thrown on some rocks and much injured, and the other canoe, which was immediately behind, ran into mine and broke about 2 feet off her bow; we filled up the holes with blankets and ran down to the south end of Kinbaskit Lake, where we repaired them, and I took the latitude, which is $51^{\circ} 54' 30''$ N. We then proceeded to the lower end of Kinbaskit Lake and camped. This lake is about 8 miles in length, and there are many shoals at the upper or south end of it; we did not pass any bad rapids to-day. The mountains on both banks are high, and the shores rocky. On the easterly side of the lake the mountains are composed of slate. The Indian trail from the mouth of Jordan Creek, terminates at the entrance of a low, narrow valley, through which a stream flows. At the south-westerly end of this lake, a large stream also falls into Kinbaskit Lake, at its south-easterly corner, and the Indians tell me there is coal a short distance up it. Dense woods covered the banks of river and mountain sides all the distance travelled to-day.

Monday, September 10th.—Left camp at 8 a.m., and immediately at the foot of lake we encountered rapids that extended the whole distance, 9 or 10 miles, travelled to-day. It might be possible at a high stage of water to get a steamer over these rapids with lines, but now they are too shallow, and there are many boulders which are not covered with water. The mountains on both sides of river are high and steep, and road building along the most of this portion of the valley would be expensive. I walked the whole distance travelled to-day, and the Indians ran, dropped, and portaged the canoes over the rapids, &c., and were most of the day in the water.

Tuesday, September 11th.—Started at 7 a.m., with the intention of running to the Boat Encampment and getting the latitude, and then proceeding on to Wilson's Landing, but I unfortunately lost my protractor, and was obliged to go back for it, which delayed me two hours, and I did not reach the above place until 1 p.m. I therefore camped, as I was anxious to determine the latitude of this place accurately. The whole distance travelled to-day was a succession of rapids, and about ½ of a mile from the junction of the Columbia with the Canoe River is a cañon, through which the water runs at a very rapid rate. A bridge might be thrown across at this place. The Boat Encampment, which is on the angle formed by the Columbia and the river that flows from the Athabasca Pass, is a point I think destined, before very long, to become of some importance, as it is at the confluence of three large rivers, and is the terminus of the Athabasca Pass. There is a good deal of level land all around it, and the mountains to the eastward are of a slate formation. The colour of the water of the Canoe River is a dark, muddy brown; that of the Columbia River, and also of the large tributary flowing from the Athabasca Pass, of a dirty, whitish colour. The junction of the Canoe with the Columbia River is the most northerly point of the latter.

Wednesday, September 12th.—Took the latitude of the Boat Encampment, which is $52^{\circ} 7' 31''$ N., and then ran down the river about 25 miles and camped. The current of the river for the 7 miles immediately below the Boat Encampment is very swift, and will probably average 7 miles per hour; there are several rapids on this portion of the river. For the next 18 miles the current is not so rapid, and will probably not average more than 4½ miles per hour. There are two good places for bridging the river some 3 miles below the Canoe River, the Columbia at those two points being about 120 and 175 feet in width; thick growth of timber on both sides of river. The easterly bank of river best for a road, as with the exception of two short points of rock, a road can be carried over low flats and benches the whole distance. The opposite side does not offer any serious obstacles to road building, but to construct one along it would be much more expensive.

Thursday, September 13th.—Ran down to Wilson's Landing, a distance of about 7 or 8 miles; passed several rapids, which would be bad for steamboat navigation, and lines would be required to get steamers over them. There is a steep, rocky bluff on the left bank of the river, a short distance above Wilson's Landing, and would be expensive to take a road around. I took the latitude of Wilson's Landing, which I made $51^{\circ} 40'$ N. I here learnt that the Officer administering the Government, the Surveyor General, and Mr. Ball would camp this evening at Kirby's Landing, I therefore ran down the river to that point, where I met them.

I remained a few days at the Columbia and French Creek, and then returned to New Westminster, which I reached on the 13th of October.

COLUMBIA RIVER EXPLORATION, 1866.

TABLE OF LATITUDES.
STATIONS SHEWN ON THE OFFICIAL MAP.

	°	'	"
Fort Shepherd	49	1	7
Wild Horse Creek.....	49	38	51
Small creek, one mile north of Columbia Lake, east bank Columbia River.....	50	19	55
Kinbaskit's Crossing.....	50	47	8
Kinbaskit's Camp (Indian fishery)	50	40	40
Mouth of Kicking Horse River	51	18	19
Mouth of large creek, nearly opposite mouth of Bushey River.....	51	44	45
Island, south end of Kinbaskit Lake.....	51	54	36
Boat Encampment	52	7	31
Wilson's Landing	51	40	00

The above were taken with a Box Sextant.

W. MOBERLY.

MR. TURNBULL'S JOURNAL.

June 19th.—Left French Creek, with Mr. Moberly, *en route* for Seymour, my instructions being to proceed to the latter place, there to make arrangements for supplies, and then start for Eagle Creek (south arm of Shuswap Lake), for the purpose of examining in detail the pass formerly explored by Mr. Moberly, and known by the name of Eagle Creek Pass. Camped with Mr. Moberly at Howell's camp, on the French Creek trail.

June 20th.—Started about 8 a.m., day fine, and reached Kirby's Landing about dusk. Hired one Indian (Narcisse) and a white man (Fred. Crowdance) to accompany me through the pass; also got two of Mr. Moberly's Indians (Pappoon and Cultus Jim).

June 21st.—Remained at Kirby's Landing, preparing for the journey.

June 22nd.—Left Kirby's Landing at 8 a.m., with my party and stores, and reached the summit of the mountain, between Seymour and Kirby's, about noon, where I found Mr. Hick employed shovelling off snow, corduroying, &c., &c. Had dinner at his camp, after which I again started, and about dusk reached Mr. Layton's camp. Found the trail in many places very soft. Camped with Mr. Layton.

June 23rd.—Morning stormy and wet; cleared off about 10 a.m. Started shortly afterwards, and reached Seymour about 5.30 p.m.

June 24th.—Sunday; remained at Seymour.

June 25th.—Getting supplies and packing up do. Making arrangements about boats, &c. Purchased one flat bottomed boat. Making up accounts, &c.

June 26th.—Morning fine; started about 9 a.m., and camped about 6 p.m., on the east shore of the Shuswap Lake, about opposite to Cape Horn.

June 27th.—Started about 8 a.m., and reached the mouth of Eagle Creek about 4 p.m. Put up a notice at the mouth of creek respecting Government Reserve. Found an encampment of Indians, one of whom died a few minutes after I reached the camp. Engaged one Indian as my guide, and purchased a small bark canoe to convey my stores up the Eagle Creek. Camped at mouth of creek. Day very sultry.

June 28th.—Remained in camp until noon, in order to get latitude, but failed to get a glimpse of the sun. I therefore started up stream in the bark canoe, examining both banks as I went along, which I found in every respect favourable for any description of road. The river is very winding in its course, but quite navigable for river steamboats. Landed at all points where the river neared the north bank of the valley, and found that near the base of the mountain an excellent dry road can be built for very moderate cost, the standing timber being much scattered and the ground very clear of fallen timber. The road may be made on nearly a dead level, and will be perfectly dry, as the bottom consists exclusively of gravel and sand. Had to camp about a mile up stream, in consequence of a heavy thunder storm, heavy rains, strong winds, &c.

June 29th.—Started about 8 a.m. Day dry, hot, and cloudless. Examined both river and valley alternately as I ascended; the timber I found more dense, and the underbrush almost impenetrable. The cost of road building, however, would be but trifling, as the fallen timber is light, and no side hills whatever; the ground is eminently adapted for road building, as it is perfectly dry and solid, and I believe will prove so the whole year round. As the day before, the

road may be brought on a dead level. The river still continues its meandering course, and sweeps alternately each bank of the valley. Its banks for some distance back, on each side, are covered with a thick growth of deciduous trees, shrubs, berry bushes, &c. The river throughout averages about 4 chains wide, with a current of about $3\frac{1}{2}$ or 4 miles an hour, and it is in every respect well suited for river steamboats. Camped on the north bank of the river, about 10 miles from its mouth.

June 30th.—Started about 8 a.m. Found the valley to continue in character as the day before, the hill sides on the north more bare of timber, but covered in places with excellent feed of first class quality. About 14 miles from the mouth, the valley is narrowed by rocky spurs, but immediately opens again to its usual width. To round the latter narrows, the road will have to be brought over a stony narrow flat, covered in places with very heavy boulders. Beyond the narrows, passed over several very fine open flats, covered only with small cottonwood trees, wild flowers, shrubs, strawberries, &c.; could be easily farmed, and would be an excellent site for a wayside house. Camped on the north bank of the river, about 18 miles from its mouth, on a beautifully ornamented flat, covered with wild flowers, low trees, and strawberries. This point I consider the terminus of steam navigation, at the present stage of water. Between this point and the mouth of the river, it will be necessary to cut out a number of snags and overhanging logs, which might otherwise prove dangerous, owing to frequent bends of the river.

July 1st.—On getting up this morning I found that one of my Indians (Cultus Jim) had left during the night, taking with him my bark canoe. I am therefore compelled to take entirely to the bush with my packs, &c., and distribute his pack amongst the rest. I found it very difficult to make much headway, owing to the thickness of the bush, fallen logs, &c. As soon as I reached near to the base of the mountains (on the north side) I continued straight on my course, and found the country as before described. A 12 foot forest clearance may be made at an average of about \$140 per mile, with a narrow graded path in its centre. There will be no corduroying of any consequence necessary. For the above sum the trail may be brought on a dead level, and traverse dry gravel flats the whole way. There are but few streams putting in from the mountains, and they are all confined to narrow, deep channels, not trickling all over the flats and hill-sides, as is generally the case, and which is the main reason why trails are so frequently cut up into mud-holes. Camped on the banks of a small stream, having only completed a distance of $2\frac{1}{2}$ miles in my straight course. Day hot and sultry.

July 2nd.—Started about 6 a.m., but could not get along at any speed, owing to the weight of my packs, and the difficult travelling. Character of valley and road building still the same. Occasionally passed over low benches, covered only with an open growth of young firs and cottonwood. The large timber having been entirely burnt off, these benches may all be taken advantage of, and will very materially lessen the cost of trail or road. Camped about 2 miles from the North Forks of the river. Day very hot.

July 3rd.—Started about 8 a.m., and reached the Forks about 1 p.m., and found it impossible to cross the North Fork at this point. Sent Mr. Crowdace down stream with one Indian, to endeavour to find a crossing by means of, and raft or otherwise, and started up stream myself with the other Indian, for the same purpose, but could not find any place to cross, owing to the width and rapidity of the current, at its present stage. The Indians who accompany me are both accustomed to boating and crossing rivers, and they agree in opinion that an attempt to cross by means of raft would only result in the loss of our provisions, probably our lives; and as I rely more on their judgment than on my own, on such matters, I will not make the attempt; but will explore up the North Forks until I reach its head waters. From thence, after examining the divide which separates it from the Columbia, I will make the best of my way either to the Eddy or to Kirby's Landing. As no one has hitherto examined this valley, and as Mr. Moberly has expressed a wish for me to do so if possible, I think, under the present circumstances, it is the only course for me to pursue. I will, therefore, to-morrow proceed up the valley, and trust to my gun for provisions should I fall short.

July 4th.—Remained in camp all day, in consequence of heavy rain and fog.

July 5th.—Started about 8 a.m.—day fine—and travelled along the west bank of the North Fork branch. $1\frac{1}{2}$ miles above the forks the river is hemmed in by steep, precipitous bluffs and slides, and runs with great rapidity in a succession of low falls. These bluffs are, however, low, therefore should it at any time become necessary to bring a road or trail up the North Forks, it can be brought over the bluffs without incurring any steep grade or the least blasting. At the commencement of this cañon, the river is not more than 60 or 70 feet wide, and I am of opinion it will be the best point to cross with mule trail, or possibly with a waggon road, should a road or trail be made to the Columbia. At the latter mentioned cañon, I again endeavoured to cross by falling trees over the river. They, however, either fell short or were broken to pieces. On the opposite side there are several trees that could be easily thrown across. Having no other alternative, I again started up stream. After leaving the cañon (which is about $\frac{1}{2}$ mile long) the valley again opens and assumes the same character as before. The flats along both sides of the river are low and very lightly timbered, and offer every facility for any description of road building. The streams putting into the river are all confined in good channels, and are easily crossed. Taking it at an average, a good wide trail can be built for about \$140 or \$150 a mile. Camped about dusk, on the west bank of the river, about 6 miles from the Forks.

July 6th.—Started about 8 a.m.—day fine—and followed along the low benches that border the west bank of the river. For the first 2 miles the benches are wide and heavily timbered, and greatly cut up by small streams from the mountain, the fallen logs are very thick, the underbrush very

dense and tangled. From the latter point the flats narrow, and in places the hill sides slope gradually to the river's edge. Both flats and hill sides continue thickly wooded and much blocked with fallen logs. The whole of the distance travelled to-day, trail making is of the lightest description. Day's travel about 5 miles.

July 7th.—Started about 10 a.m.—morning foggy and wet—and travelled along the west bank as before; the valley still wide and low, but the flats and hill sides more encumbered with fallen timber; the standing timber is also heavier and the underbrush of the worst possible description. Camped about sundown, on the bank of the river, near to a large tract of swamp meadow land, covered with excellent grass. Day's travel about 4 miles.

July 8th.—Started about 9 a.m. Day foggy, bush very wet and miserable. For the first two miles the valley continues the same as described yesterday; it then narrows considerably and rises with greater rapidity. In many places the hill sides fall with steep slopes to the river's edge, and are well dotted with large rocks and boulders; the underbrush during the whole day's march of the worst possible description; the fallen timber also very thick; no engineering difficulties, however, of any note in the way of trail making. Day's travel about 4 miles.

July 9th.—Started about 8.30 a.m. After about a mile's travel, the standing timber almost entirely disappears, and in its place the bottom and hill side is covered with a tall, thick growth of mountain willow, so thick and tangled that I was scarcely able to force my way through it. The creek continues to rise rapidly for about 4 miles, when the summit is gained; at which point I found the barometer to register 26,400, somewhere about 2,000 feet above the mouth of Eagle Creek. The summit is covered with a thick growth of fir, but with very little underbrush. The creek terminates in a small lake or swamp. The valley, however, still continues in the same course, and about 1 mile on a small creek joins it from the east, which falls to the northward, through the bottom of the valley, in a very winding manner. Camped about 1½ miles north of the summit. Day's travel about 6½ miles.

July 10th.—Morning showery and foggy up to 10 a.m., after which very heavy rain all day. Remained in camp. Sent the Indians out to see if they could shoot anything.

July 11th.—Morning still showery and foggy; but having no provisions, started about 8 a.m. along the bottom of the valley, and found it to fall very gradually in a northerly direction, still wide and heavily timbered with firs and cedars and dense underbrush. 3 miles from the summit a small creek joins it from the east. The latter creek springs from a high snow peak about 2 miles back. A mile further on a second creek joins it from the same direction, which also terminates in a high divide, separating it from the Columbia. From this same divide, a creek heads which empties into the Columbia River, about 3½ miles below Kirby's Landing. 2 miles further on, the valley turns westwards, and gradually falls towards Seymour. At the turning point it is joined by several creeks, which all terminate in the Kirby Divide or summit of the Government trail. The largest of these creeks I followed, and found that it headed from nearly the same point as the summit of the Government trail. Camped there about dusk.

July 12th.—Not having had any provisions for nearly two days, started with Mr. Crowdance to shoot ground hogs. Found them very plentiful. We shot six and had an excellent feed, and camped within a mile of the Government trail. Day foggy and showery.

July 13th.—Heavy rain and fog. Remained in camp all day.

July 14th.—Started about 9 a.m.—morning fine—and reached Kirby's Landing about 4 p.m., where I found Mr. Moberly and Mr. Howell camped.

July 15th and 16th.—Remained at Kirby's Landing waiting for supplies, which were on their way from Seymour.

July 17th.—Started about 8 a.m. down the Columbia River, accompanied by Mr. Howell and two Indians, my instructions being to proceed to the Eddy, there to *cache* the chief portion of my stores and provisions, and then to explore to the north fork of the Eagle Creek pass. After which I am to proceed to the head of the Kootenay Lake, *via* the Kootenay River, and explore in that direction. Camped at the head of the Little Dalles.

July 18th.—Finding that it would be dangerous to run my boat through the Little Dalles I made a portage of my provisions, and let the boat steer its own way through. The boat was little over a minute in getting to the bottom of the Dalles, where I had an Indian with canoe ready to catch it. Got the boat all right, then started down stream, and camped at the Eddy.

July 19th.—Making a *cache* of my provisions and stores, and arranging my packs for my trip to Eagle Creek, North Forks.

July 20th.—Started up the valley of the Eagle River Pass, following along its north bank. Along the whole way the route lay over splendid low benches, very little in altitude above the bottom of stream; the timber throughout is very light, and consists exclusively of pine and cedar of moderate growth; the underbrush and fallen timber also very light; very few streams putting into the valley, and road making of the most trifling description. Three miles up the valley, the benches are dotted with huge fragments of granite rock and boulders; by keeping, however, close to the base of the mountains, or nearer to the edge of the stream, they are all avoided.

The bottom (close to the stream) is thickly covered with a growth of tangled willows, and is swampy; in many places open patches of swamp grass meadow are to be seen. About 5 miles up, the valley begins to narrow, and the meadows and swamps at bottom appear more extensive; road building still light, and of the same description as before. All the meadows and swamps are entirely avoided by following the benches. From the latter point, viz., 5 miles from the Eddy, the valley continues to narrow, and is intersected by several small streams from the mountains. $1\frac{1}{2}$ miles on, the summit or dividing ridge is struck, which I found by barometer to register 27-980. Immediately to the west of this ridge, the first small lake is situated; camped at the east end of the lake, having completed a distance of about $7\frac{1}{2}$ miles.

July 21st.—Morning showery and foggy. Having completed the construction of a small raft, started up the centre of lake, from which position I could well examine, roughly, each shore. I found the lake about 40 chains in length, by about 20 chains in width, very deep, and closely hemmed in on both sides by steep, precipitous mountain spurs, well dotted with high bluffs, slides, and precipices. As I intend to examine both shores in detail on my return trip, I cannot, at present, say which will be the best route for the road; my impression, however, is that the south shore will be found to be the best, as the bluffs are less numerous, and the hill sides and slides less precipitous. The next lake is situated about $\frac{1}{4}$ of a mile to the north-west, and is connected with the latter by a wide meandering stream; the trail may be brought on either side, with equal cost, as the entire distance is over level, timbered flats. Towards the head, or east end of the lake, the valley is swamped, in consequence of beaver dams, and is covered with excellent grass at low stage of water, and will afford abundance of feed for animals; the lake is similar to the last as regards length and breadth, but not having such steep and precipitous shores. A trail may be brought on either side, without incurring any serious blasting, by keeping close to the edge of the lake, and by adopting short, steep pitches in a few places. Until my return, I am not prepared to state as to which is the best route. From the end of the latter lake, the valley begins to widen, and is bordered by more sloping hills; the flats at bottom are of the same character as regards timber, cost of road, &c. Camped about $1\frac{1}{2}$ miles from lake No. 2. Very heavy rain nearly all day.

July 22nd.—Morning still wet. Started about 8 a.m. along the bottom of valley as before, through underbrush of the worst possible description; found the flats more encumbered with fallen logs; examined both banks, and am of opinion that the north shore will be the most eligible for road or trail, as it is both shorter and can be made at less cost. Camped at the head of the 3rd lake, and made a raft capable of carrying myself and party.

July 23rd.—Day, fine. Started about 8 a.m. along the centre of lake; had a good sight of each shore, and could easily see that the north bank was, unquestionably, the most eligible to adopt. The lake averages about $\frac{1}{2}$ a mile in width, and is about $1\frac{1}{2}$ miles in length. Near to its head, or north end, the banks are steep and broken, but only for a very short distance, they then gradually become more sloping, until reaching near to the centre of the lake, the flats are struck, which continue to the foot. I am of opinion, that by keeping along the bottom of the bluffs mentioned, at the head of the lake, a trail may be built round without any blasting of consequence. I will, however, be better prepared to describe on my return trip. From the end of the lake, I proceeded along the north bank of the valley, which I found undulating, and not heavily timbered. As I descended, the valley gradually opened, and assumed the same character as described near to the Columbia River. The river winds through the bottom in a very tortuous manner, and is much blocked up in places with drift timber. A mile from the 3rd valley lake, I came to a 4th lake, about 1 mile in length, by about 30 chains in width. From what information I had received, I was led to believe that there were only 3 lakes in the valley. Camped at the head of the latter lake.

July 24th.—Started about 9 a.m.—morning showery and foggy—and travelled along the north shore of the lake, which I found was skirted with low, wooded benches, similar in character to those described between the Eddy and the first lake. Camped at the foot of the lake, owing to heavy rain, which rendered travelling through the thick bush almost impossible, with safety to our provisions.

July 25th.—Morning fine. Started about 8-30 a.m. along the north bank of the river, which I found very winding, and frequently through extensive meadow swamps, which so soon as the water falls, will afford abundance of feed for animals. The character of the valley is still the same, and with the same facilities for road building. Camped about 6 miles below the 4th lake.

July 26th.—Started about 8 a.m.—morning fine and cloudless—and followed along the valley as the day before; crossed two small creeks, which will require bridges from 40 to 60 feet in length; road building still as the day previous, perfectly dry, moderately timbered flats the whole way. Made the crossing of the North Forks by 4 p.m., and camped.

July 27th.—Sent the Indians up to the cañon before mentioned, in order to cross the North Forks and get my stores, which I had cached on my way up the North Forks. In the meantime, I explored in all directions along the bank of the river, in order to select the best crossing or site for a bridge. From my observations, I am of opinion that at the commencement of the cañon, already mentioned, will be the best point to cross, although the distance will be a little greater. To cross lower down, I am afraid, owing to the strength of the current, its great width (200 feet), and the great quantity of drift wood which is continually passing down at high stages of water, that bridging with such a span would be very costly in the first place, and not very permanent afterwards. Still remained at the same camp.

July 28th.—Having received my *cached* stores, started back on my return trip towards the Columbia River, examining in detail the features of the country through which I passed. I am satisfied that a good level trail may be built from the Forks to the lake No. 4, at the rate of \$140 per mile, as the whole distance is one continuous line of level flats, or gently sloping side hills. Camped at the foot of lake No. 4; day fine.

July 29th.—Started about 8 a.m., and ascended to the summit of the mountain bordering the north bank of the valley, in order to get a full view of the country; reached a lofty peak, situated immediately opposite the centre of 3 valley lake, from it I had a very extensive view in every direction; saw up the valley of the Shuswap River, almost to where Cherry Creek joins it; it appeared in all respects very favourable for any description of road or trail, being wide, low, and well supplied with excellent feed all along its bottom. Saw a second valley, which joins the latter near its junction with 3 valley lake, it also appeared low and favourable. I could trace it almost to the Columbia River; it evidently leads somewhere in the vicinity of the Arrow Lakes. After making my observations, I struck down hill and joined my party at the foot of the 3 valley lake, and camped.

July 30th.—Started about 6 a.m., and travelled along the north shore of the lake, my Indians with stores proceeding by raft. I found that for one mile the lake was lined by a low wooded bench, along which a trail can be built for \$180 per mile, it then turns sharply to the eastward, and is bordered by steep, rocky slopes, well dotted with slides and precipices; all the bluffs, however, with the exception of two, fall short of the lake's edge, leaving ample room for a good trail above high water mark. The two bluffs which I have mentioned, are not more than 70 feet in height, and are quite accessible from the water's edge, therefore, the trail may be brought over their summits without incurring any blasting whatever. On detailed examination, the whole of the route round the lake appears less formidable than I at first anticipated, and I am confident, will not cost for the whole length (about 14 miles) more than \$800. Having completed the examination of lake, I next proceeded up the valley to the next lake. This portage is about 3 miles in length, in several places the entire bottom is swamped by beaver, the trail will consequently have to be brought round the sidehill; and in several places, owing to the bluffs descending to the bottom of the swamp, there will be required a good deal of corduroying, or low bridging. I think, however, that by keeping on the north side of the stream, the trail can be built for about \$650, across this portage. I next examined No. 2 lake, and could see that the south shore was unquestionably the best route for a line of trail or road. A low, rugged, rocky, broken bench runs completely round the lake, over which an old Indian hunting trail is plainly marked. By following this route, there will be but very little blasting, but the trail will have several short but not dangerous pitches. It is possible, that a better route may be found by keeping further up the hill side, about 100 or 120 feet above high water mark, as the hill side appears quite sloping and free from bluffs. However, by adopting the lower route, a good trail can be made for about \$600, or thereabouts. Leaving the latter lake, I next proceeded up the valley to lake No. 1, which is distant about 1 mile from the last lake. The trail along the latter portage will be easily built, as the entire route is one continuous wooded flat. I next examined the south shore of the lake, as it was evidently the most eligible route to adopt, and I found that there was only one bluff to cross, and that by keeping up about 100 feet above the lake, it could be crossed with about two chains of heavy work—such as walling, cribbing, and partial blasting—the remainder of the distance would be stiff side hill; altogether, I estimate this lake at about \$700. After completing the latter examination, I made the best of my way to the Columbia; reached the Eddy by dusk, and camped.

July 31st.—Drawing a plan, and writing a report to Mr. Moberly on my last reconnaissance through the Eagle Creek.

August 1st.—Still employed with plan and report, and preparing my stores, &c., for my next trip to the head of the Kootenay Lake. Mosquitoes, frightful.

August 2nd to 7th.—Proceeding to Fort Shepherd, in order to procure bark canoes and Indians.

August 8th and 9th.—Remained at Fort Shepherd, endeavouring to procure Indians and canoes, could not secure the services of Indians, as they were all busily engaged fishing, hunting, &c. Persuaded a white man (Dick Fry) to accompany me with his canoes as far as the smooth water of the Kootenay, at which point he was to return by land, leaving me the two bark canoes.

August 10th.—Started up the Columbia River *en route* for the Kootenay Lake. As I have already described the route up the Columbia, and as Mr. Dewdney has also described the Kootenay valley, I will not, at the present time, attempt any description. Camped about 15 miles from Shepherd.

August 11th.—Started about 8 a.m., and reached the mouth of the Kootenay River, by 5 p.m. Day fine.

August 12th.—Started up the Kootenay River, and camped $1\frac{1}{2}$ miles up, at foot of the first portage, owing to thunderstorm, heavy rains, &c.

August 13th.—Owing to the roughness and rapidity of the river, had to make a $1\frac{1}{2}$ mile portage over a very bad trail. Camped at the end of the portage.

August 14th.—Canced up stream, and camped at the foot of the first falls, having completed a distance of about $8\frac{1}{2}$ miles; river very rapid and dangerous the whole way.

August 15th.—Made a $3\frac{1}{2}$ mile portage of our canoes, provisions, &c., and camped at the end of the portage. Met with a party of prospectors, who were endeavouring to get up the river; they have been 3 weeks getting so far; had they bark canoes, they would have made the trip in 5 days.

August 16th.—Made about 5 miles up river, and camped; had to make several small portages of provisions and canoes.

August 17th.—Cleared all the bad water by noon, and discharged Dick Fry; made about 10 miles further and camped; water from the last rapid without current.

August 18th to 20th.—Canoeing to the head of the Kootenay Lake.

August 21st.—Canoeing up the stream separating the lower and upper Kootenay Lakes, which I found very rapid. Had very hard work to stem the current with our bark canoes.

August 22nd.—Reached the foot of Kinbasket's trail. Found no Indians there.

August 23rd.—Canoeing to the head of the upper Kootenay, in order to secure the assistance of Indians. Reached the head about 4 p.m., and found one family encamped there.

August 24th.—Engaged an Indian (Na-how-a-chin) to accompany me to the summit of the range, *vid* Creek No. 1 (see plan). He informed me that from that point I could see the whole range. Packed up stores, &c., for the trip, and also made a *cache* of provisions.

August 25th.—Started up Creek No. 1, and found it very narrow and rocky, and with a very steep grade. Bush very thick, and abundance of fallen timber. Camped about 4 miles up stream.

August 26th.—Continued up stream; found that the valley narrowed rapidly, and to rise with a very steep grade. About noon I came to where it terminated in several steep gulches. Ascended to the summit by one of the gulches, and came to eternal snow and ice. Could see nothing but one continuous field of ice peaks, &c. Waited on this summit for the appearance of my Indians. They, however, have evidently taken up the mountain by some other gulch. I am, therefore, compelled to take shelter for the night behind a few stunted, withered pines, without blankets or food.

August 27th.—Cannot imagine where the Indians can have camped. Can see in every direction, but not the least sign of fire or camp. Descended to the bottom of valley, and searched in every direction for their tracks, but failed to get the slightest trace of them. Being very hungry, I gave up all idea of hunting them up, therefore started with Mr. Howell to our *cache* at the head of the lake, well aware that the Indians would soon trace us and return. My next idea is to explore the Creeks Nos. 2 and 3 (see plan), and by one of them cross over to the head waters of the Columbia. Reached our *cache* a little after sundown, in a very hungry state.

August 28th.—Remained in camp all day, waiting the return of my Indians and guide.

August 29th.—Remained in camp. Indians returned a little after dusk, with a very confused account of where they had been. Discharged Na-how-a-chin, as I could see that he was perfectly useless and not fit to travel.

August 30th.—Left the head of the lake, and camped at the foot of Kinbasket's trail, between Creeks Nos. 2 and 3.

August 31st.—Rain and fog. Remained in camp, preparing packs, &c., for next trip. Found that the greater portion of my flour was destroyed. Had to empty it out into new bags.

September 1st.—Started up the No. 2 Creek. Found it wide and low, and in every respect quite favourable for trail making, but very heavily timbered and blocked up with fallen logs, &c. Very slow travelling in consequence. Camped about 5 miles up stream.

September 2nd.—In consequence of the difficulty in getting along the bottom of the valley, and in order to get a good view of the country, and escape the timber, I began the ascent of the mountain separating Creeks Nos. 2 and 3. Reached the summit about dusk. Could see up both creeks for a considerable distance. Could also see up the N.W. Creek (see plan) shewn running into the head of upper Kootenay Lake. As far as the eye could reach it appeared low, wide, and must join somewhere in the vicinity of the summit of the east branch of the Ille-cille-want River. I certainly think that if the latter creek was properly prospected gold would be found in paying quantities, as it has every appearance of being a gold-bearing country, and must drain nearly the whole of the country lying between this and the summit of Gold Stream. For trail making, however, the valley would be useless, as it would be as great a bend as the Big Bend itself. Camped on the summit.

September 3rd.—Travelled along the ridge in an easterly direction, keeping in view both valleys below. Found it quite as difficult to make head way above as below, owing to the broken nature of the ridge. Made very little progress in consequence.

September 4th.—Seeing that it would be impossible for me, owing to the roughness of the country, to examine the whole of the range towards the head waters of St. Mary's and the head waters of the Columbia, I divided my party and provisions with Mr. Howell, and gave him instructions to cross over Creek No. 3, gain the summit of the mountains to the south, and then travel in a southerly direction, and find out the head of St. Mary's Creek; after which find out whether any of the creeks emptying into the Kootenay Lake headed in the direction of St. Mary's Creek; after which to join me at our *cache* at the foot of Kinbasket's trail. For my part, I determined to travel in an easterly direction, ascertain the height of the divides at head of Creeks

Nos. 2 and 3, then cross over the divide by some other way to the head waters of the Columbia. Travelled along the summit, as the day before, towards the head of the creeks before mentioned. Travelling getting much more difficult, continually ascending and descending steep, precipitous peaks and slides. Camped about dusk, at the foot of a high, rocky peak, which I could neither cross over nor round in any way.

September 5th.—Not being able to proceed further along the ridge, I descended to the bottom of Valley No. 3. On my way down, my Indian (Narcisse) got afraid whilst crossing a bluff, lost his presence of mind, and threw away his pack containing the whole of my provisions. I sought for it in every direction, but could not get the least trace of it. Had to camp without food. I am rather afraid I shall have to return to my *cache* a second time without food.

September 6th.—Started at sunrise, and searched in all directions for the missing pack. Had to scramble amongst rocks and precipices, at the risk of my neck. About noon, saw it behind a large boulder, on a shelf of rock, and had the greatest difficulty in getting at it. After partaking of food, again started and made the bottom of valley about dusk, and camped.

September 7th.—Travelled along the bottom of the valley towards the head waters, and found it low, wide, and in every respect favourable for any description of road, but very heavily timbered, and blocked with fallen logs. About dusk I came to where it terminated suddenly in three steep gulches. Camped at the foot of the centre gulch.

September 8th.—Started about sunrise, and commenced the ascent of the centre divide, it being evidently the lowest of the three. On reaching the summit, I found that immediately on the opposite side a large open valley took its head and bore straight to the Columbia River, in a north-easterly direction. The latter valley I make no doubt is one of the Toby Creeks shown on plan. The divide is quite narrow on the top—not more than a chain—and descends on both sides, particularly the eastern slope, with great rapidity. Its altitude above the sea I found by barometer to be about 5,330. The bottom of each valley is not more than $\frac{1}{2}$ mile apart in a horizontal line. For a mule trail the divide would answer, as by zig-zagging it could be brought up and down with a good grade, and could, owing to its narrowness, be easily cleared of snow. The summit itself would be a trifling matter, as it is not more than a chain wide. The divide, however, will never answer for a waggon road owing to its height and steepness. Having examined the divide, I descended to the valley to the eastward, as I am determined to proceed down it to the Columbia, determine the latitude of the latter, and collect what information I can of other routes, supply myself with a fresh stock of provisions, then return and examine all the divides to the northward. Camped about $1\frac{1}{2}$ miles from the summit, and put myself and Indian under very short allowance of provisions.

September 9th.—Started about sunrise, and travelled as quick as I could down stream, my stock of provisions being now almost exhausted. Camped about 10 miles down. Had to wade across a very large stream putting in from the north-east (see plan at C.) I will explore this on my return. The whole of the distance travelled to-day a trail may be made for \$120 per mile. Plenty of first class feed in every direction.

September 10th.—Travelled down stream. Everything as regards road building of the most simple description, and abundance of feed. Travelling difficult, owing to fallen logs and thick brush. Crossed a second large low valley at D. I will also examine the head waters of this valley on my return, as they appear quite low and may have low divides. Have to camp without supper to-night. Indian very sulky.

September 11th.—Started about sunrise. After about an hour's travel killed 3 grouse. Stopped and cooked two of them. Started again, and in a couple of hours struck bunch grass flats and side-hills, and about noon came to the low, rolling hills which border the Columbia. Found horse trails in every direction, but could not see any other signs of Indians. Travelled about until dark, but failed to strike across any Indians or camp, therefore had to camp without provisions.

September 12th.—Travelled up the Columbia, and about 9 a.m. came across an Indian on horse-back, who directed me to where the Indians were encamped. On reaching which I found about 30 Kootenay Indians engaged fishing the most vile description of salmon, which I found was the only food they had in their possession. Hired a horse from one of them, and started down stream in order to find Kinbasket, and see if I could get any provisions from him, and also information respecting the different routes. Had not gone far when I met in with his two sons, who informed me that he had gone down the Columbia with Mr. Moberly. They had nothing but the same description of salmon, and could give me no legitimate information respecting the country. Returned to my camp, resolved to send an Indian to Wild Horse, if possible, and get a supply from that quarter.

September 13th.—Made arrangements with an Indian to ride to Wild Horse for a supply of provisions, and to be back in three days.

September 14th and 15th.—Took latitude.

September 16th.—About 10 a.m. the Indian returned from Wild Horse with my provisions. Hired one of the Kootenay Indians to go with me on my return trip, and started about 1 p.m. for the mouth of the valley of Toby Creek. Camped about 1 mile from its junction with the Columbia.

September 17th.—Travelled up the valley, and camped about dusk at the junction of the upper branch (see plan at C.) On passing the junction at D., I could see that it must head somewhere from the same direction as the branch C., therefore, I made up my mind to explore the latter, and from its divide proceed in a northerly direction and examine the other.

September 18th.—Travelled up the valley at C., and found it very favourable for road making. By sun-down, I came to where it terminated abruptly in the face of a huge mountain covered with glaciers, and perfectly useless and unfit for anything in the way of routes.

September 19th.—Started up the summit for the purpose of getting to the summit of D. branch valley. Had the greatest difficulty in gaining the top, owing to the steepness and broken nature of the glaciers. Had to fish my Indian out of several deep cracks. On reaching the summit, I found that valley D. sprung from the same divide (see plan.) I next travelled for about 2 miles in a northerly direction over fields of ice, then struck down hill until I got to wood and camped. My intention now is to travel on the range until I ascertain something about the head waters of the N.E. branch (see plan at Upper Kootenay Lake.)

September 20th.—Continued to travel on the ice. My Indian, who is now thoroughly afraid, is very sulky, and it is only by threats that I get him along.

September 21st to 24th.—Continued to travel in a northerly direction along the summit, which I found to be one unbroken chain of the most wild and rugged peaks man can possibly imagine. On the evening of the 24th, I reached a point on the range from which I could see the source of the Spille-mu-chem, also the N.E. valley shown on plan, emptying into the Upper Kootenay Lake, the divide being much more formidable than any I had formerly examined. So being now perfectly convinced that no pass can exist through this range up to this point, I shall at once return to my cache. I anticipate a rough time in doing so, as my provisions are nearly out.

September 25th to 29th.—Returning to the cache, which point I gained on the evening of the 29th, but in a very weak condition from the want of food. Found Mr. Howell at the cache, where he had been for 12 days. I was much afraid he had left for Shepherd, thinking me either lost or having gone round by Wild Horse. Had he done so, I would have been in rather an awkward fix, as I had neither axe, provisions, tobacco, or anything else.

September 30th to October 6th.—Travelling to Fort Shepherd with bark canoes; was several times very hard up for provisions, and had one or two rather narrow escapes of being swamped in the riffles of the Kootenay River. Met the four prospectors (of whom I have spoken) working their way up the river with their winter's provisions; they spoke of having good prospects somewhere between the mouth of Kootenay River and the lake, and were going to spend the winter there, and do what work they could. Reached Fort Shepherd on the evening of the 6th.

October 7th.—I am informed by Mr. Jane that my instructions are on board the Forty-nine, and that Mr. Moberly has gone to New Westminster; therefore, as it is very likely that my orders will be to return to New Westminster also, and as the steamer is expected down in a couple of days, I will remain here until the steamer arrives from above.

October 8th.—Waiting for steamer, making up my journal, accounts, &c.

October 9th, 10th, 11th.—At Fort Shepherd.

October 12th.—The steamer arrived from above about 10 a.m. I received my letter of instructions, which informed me that I was to make the best of my way to New Westminster, also to make the best arrangement I could about money; I tried Mr. Jane, but he could not advance; I next tried Mr. Hardisty, who very kindly advanced me \$375; with this sum I was enabled to pay off two of my Indians, and all my bills; one Indian, however, I could not pay off, but as he is going to Kamloops, I intend bringing him with me as far as Osoyoos, where, perhaps, Mr. Haynes may settle with him.

October 13th.—Receiving the money from Mr. Hardisty; paying off my Indians, &c., &c.

October 14th to 21st.—Travelling to Osoyoos Lake with Mr. Brown's train. Arranged with Mr. Haynes to pay off my Indian.

October 22nd to 28th.—Travelling to Hope; found the Hope mountain trail in excellent condition, and wanting no repairs, more than the removal of a few logs, and repairs on one or two small bridges, which have been lately destroyed by fire.

October 29th.—On board steamer for New Westminster.

J. TURNBULL.

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September 4th.—Having received orders from Mr. Turnbull to proceed and examine the district between Kootenay Lake and the head of St. Mary's River, I started across divide between Creeks Nos. 2 and 3, crossing the latter about 5 miles from its mouth. Found the bottom low and favourable for a road. As Mr. Turnbull examined this valley, I commenced the ascent on the south side, and camped about one mile up.

September 5th.—Continued the ascent of the mountain, as shewn on Mr. Turnbull's tracing, in a south-easterly direction, and reached the summit at the head of Creek No. 4, which ends abruptly about 7 miles from its mouth, and camped.

September 6th.—Keeping along the divide in a north-easterly direction, I encamped about 6 miles from the head of Creek No. 4.

September 7th.—Gained the main mountain range, which I found covered with snow and glaciers. I could see the valley of the St. Mary's down to its mouth. Camped at the head of Creek No. 5, which terminated in snow peaks.

September 8th.—Crossed divide between Creeks Nos. 5 and 6, the latter of which also terminates in a high divide.

September 9th.—Ascended to the summit of a high peak, shewn east of Creeks 5 and 6, from which I could see down the range to the mouth of the Kootenay River. From the character of the range, I am certain that all the valleys terminate in high divides; and having only sufficient provisions to carry me back, I made up my mind to return.

ROBT. HOWELL.

VICTORIA, B. C.,

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